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JULY 20, 1931

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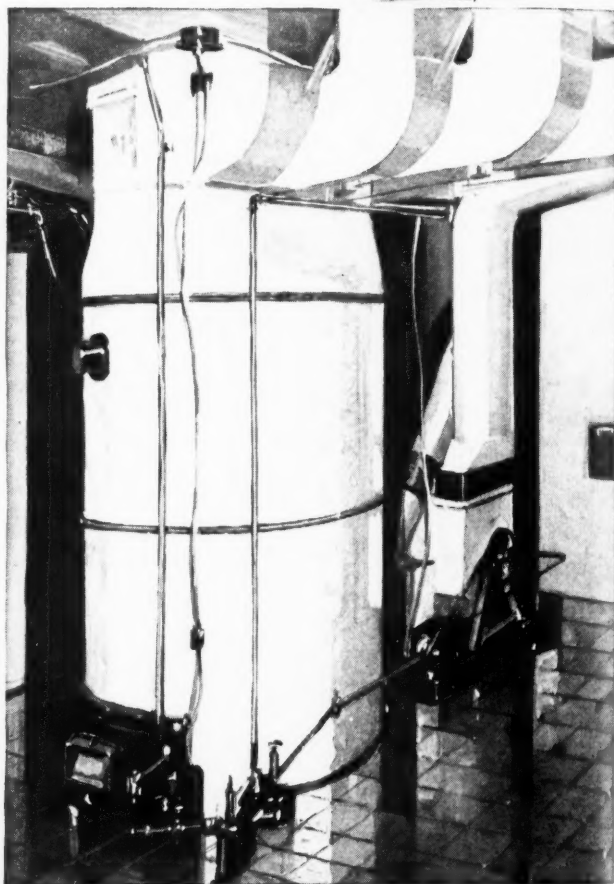
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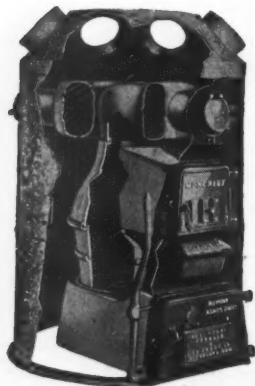
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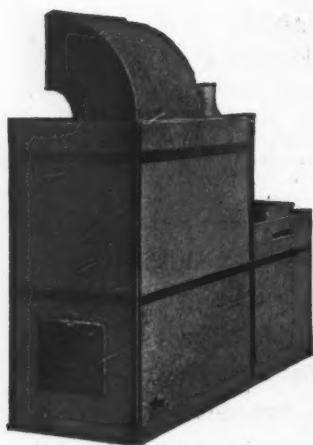
The new Moncrief Air Conditioning Gas Furnace, finished in apple green, full automatic, wonderfully efficient and economical;

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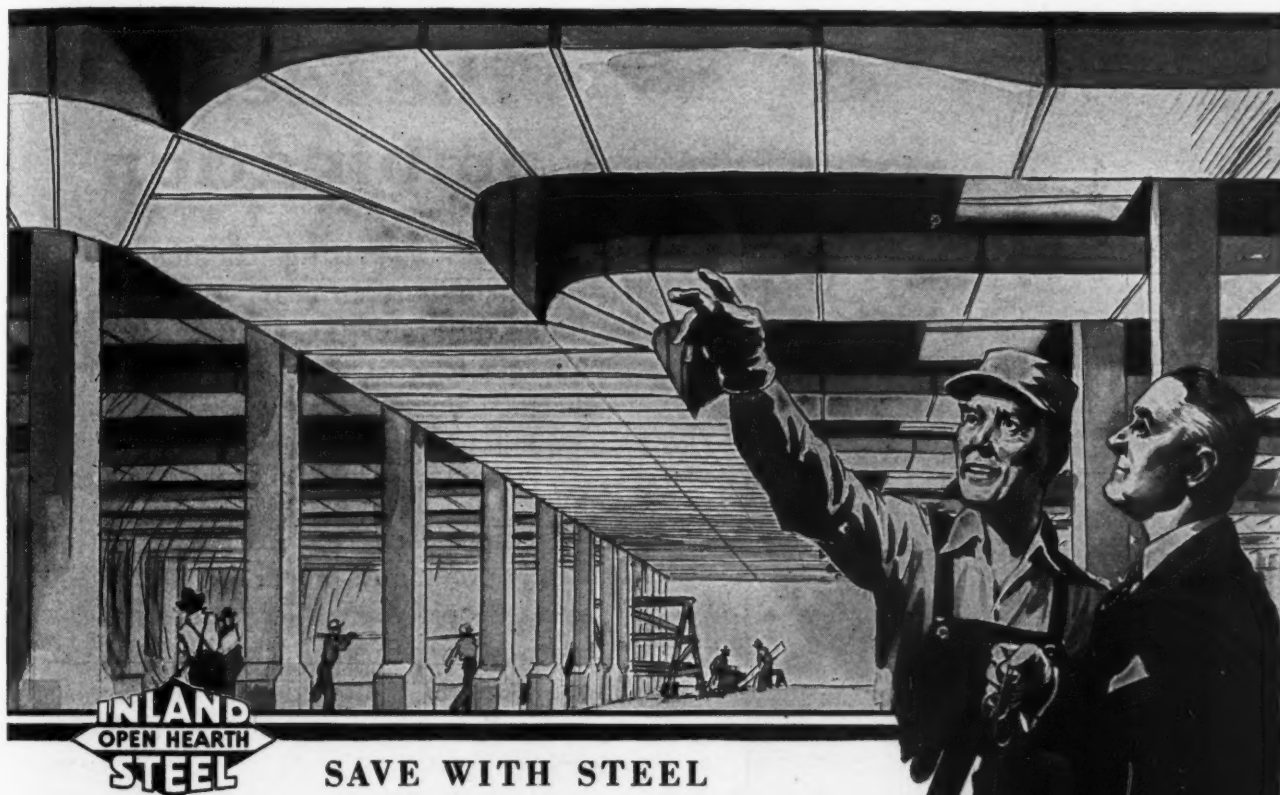
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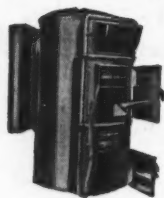
## The Ideal Combination

**H**ERE'S a selling combination that's hard to beat: Warm air heating advantages and economy, plus gas-for-fuel conveniences and efficiency, linked with the ever widening reputation of Western Steel Products Company.

The new Western GAS Furnace is already proving its worth by its rapid sales. People everywhere are learning to heat with gas. They're being told "Gas is the Modern Fuel" by practically every medium of advertising.

Get in on the profits this tide of popularity will bring to dealers in Western New GAS Furnace.

*Write for Catalog No. 31*



The Western coal-burning furnace is still building an enviable reputation in every state in the Union, in every province in Canada. Write for the name of our jobber nearest you.

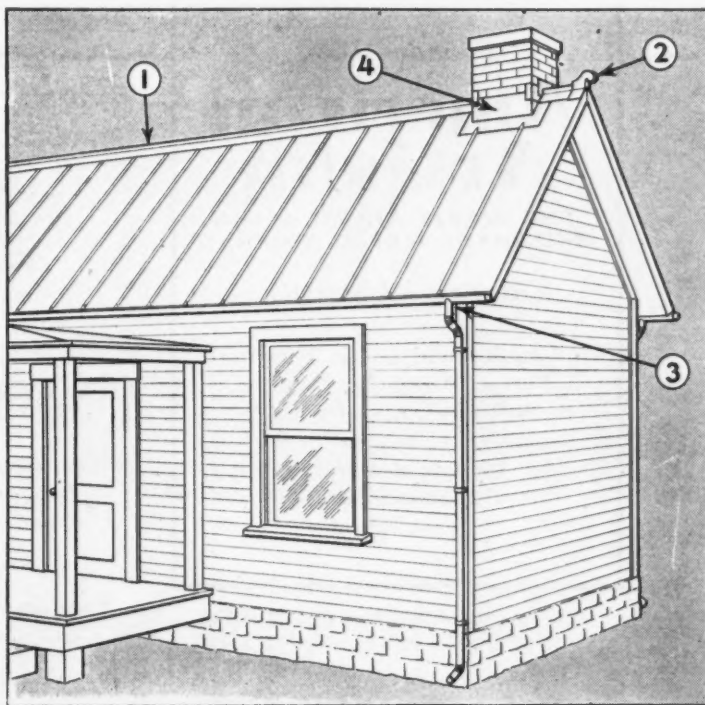
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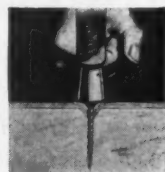
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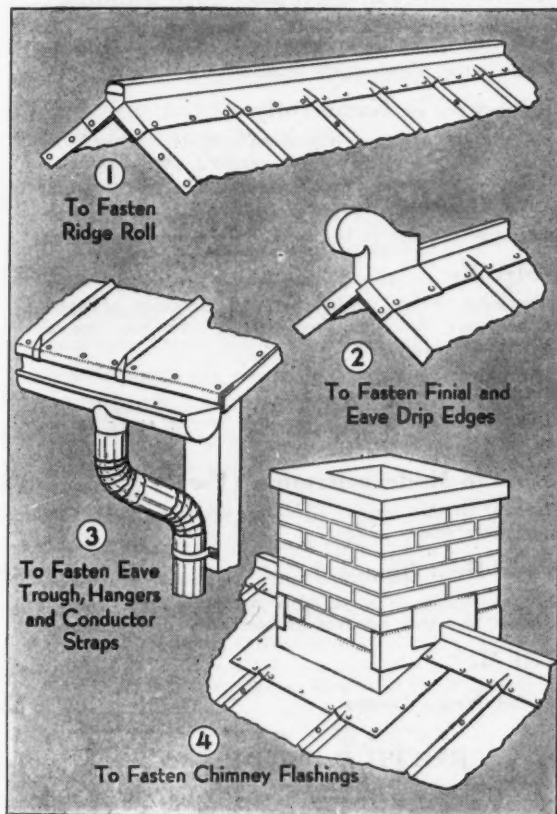


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Founded 1880

# American Artisan

THE WARM AIR HEATING  
AND SHEET METAL JOURNALCovering All Activities  
INGravity Warm Air Heating  
Forced Warm Air Heating  
Sheet Metal Contracting  
Air Conditioning  
Industrial Roofing  
Merchandising  
Ventilating

We have referred several times to the desirability of co-operating with architects who are planning large houses. The Trask Heating Co., of Boston, has followed this plan for years—always with success. A story on one of their co-operative efforts with architects is in this issue.

\* \* \*

One of the most interesting articles published this year is the one in this issue on wall dust streaks. Every one of you have wondered what causes these streaks and probably have taken abuse from owners who said your furnace was dirty. What causes these streaks and how to eliminate them is told in this article.

VOL. 100, NO. 15

JULY 20, 1931

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JOSEPH D. WILDER  
Editor

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**for "SILENT" and warm air**

**I**N THE finest homes, in the finest residential districts of many cities, you find Silent Automatic operating with *complete satisfaction* in connection with forced air heating systems.

Scores of heating men in these cities have written us, stating that they regard Silent Automatic as a valuable sales asset and an important factor in every complete warm air installation. From experience they have found that "Silent"—by providing clean, odorless heat and freedom from furnace tending—opens the doors of the largest and best homes to them and their story.

Gust. Krack & Son, heating contractors in Erie, Pa., write: "We feel that it is absolutely necessary in these times for a heating contractor to have a complete line of heating equipment—the

For Warm Air, Steam and Hot Water Heating Systems—Old or New Homes

furnace and oil burner making an ideal tie-up."

In some warm air heating centers, as high as 50% of all Silent Automatics are installed with this type of furnace—and thousands of these sales have brought direct profit to warm air heating men. Send the coupon for detailed information regarding this opportunity in your own territory.

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The home of Gerald J. Wagner, Grand Rapids, Mich., engineer—a fine example of a Silent Automatic warm air heating installation.



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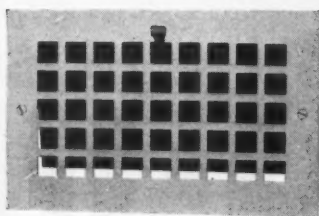
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## A COMPLETE Line of Registers BUILT for FORCED-AIR Heating!



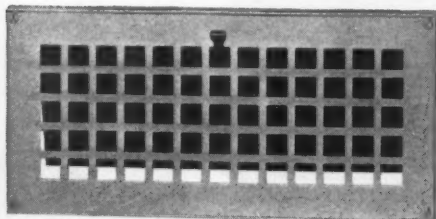
No. 3350

1-PIECE SIDEWALL REGISTER. The face of this register is designed to overlap the wall opening.

No. 3351

Similar in appearance but employing the 3-piece construction, designed to be installed flush with the plaster.

BASEBOARD RETURN AIR INTAKES to match these registers may be set into the baseboard to overlap the opening.

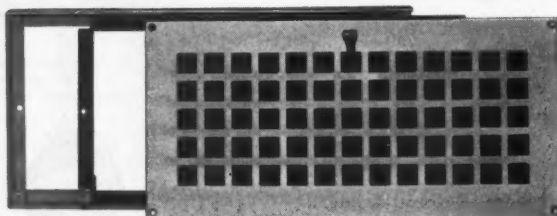


No. 3151

3-PIECE BASEBOARD REGISTER

Good-looking, yet inconspicuous. Occupies a minimum of space. Free from leaks and rattles. May also be had in 1-piece construction, known then as No. 3150.

All our forced-air registers have extra valves reinforced at top and flanged outward on three sides to prevent air leakage. Easy operating, positive friction hinge that never requires adjustment.



The 3-piece construction, as shown above, facilitates installation, assures a perfectly tight, streak-proof contact between register and stackhead, prevents distortion of stackhead, allows face to be quickly and easily removed without disturbing installation.

**T**HERE is no longer any need of attempting to adapt gravity type registers to a forced air job, with the usual unsatisfactory results—No necessity for having special registers made at premium prices—No reason at all for being less than certain that the registers you use are scientifically right in every way.

Hart & Cooley engineers have studied the register requirements of forced-air heating from every angle. And again the Hart & Cooley Manufacturing Company demonstrates its leadership in the register field by providing the *first complete line* of registers built specifically for forced-air heating.

Complete satisfaction in forced-air heating demands registers designed for this purpose. In our new line you'll find a type and size ideally suited to each requirement.

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will be in the mails in a few  
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### SIZES AND FINISHES

All our forced-air registers may be had in prime coat or any finish desired. All are made in the following flange or stackhead sizes:

Horizontal Dimensions	VERTICAL DIMENSIONS				
10"	4"	5"	6"		
12"	4"	5"	6"	8"	10"
14"	4"	5"	6"	8"	10"
30"	4"	5"	6"	8"	

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Registers for all purposes. Also a complete line of Furnace Regulators, Dampers, Pulleys, Chain, and the H & C Automatic Heat Control

Say you saw it in AMERICAN ARTISAN—Thank you!

# The Growth of Gas Heating

IT has become increasingly evident during the past year that gas as a fuel in house heating is rapidly becoming a factor to be reckoned with. But just what the growth of gas has been has for the most part been a matter of estimates and guesses. Now, however, the American Gas Association through its Committee on House Heating has released figures which tend to clarify the situation.

These figures are, at the same time, well worth thought and study. The committee reports that use of gas resulted in an unprecedented increase during 1930. The report was compiled from detailed reports of 176 manufactured and 31 natural gas companies. The report further says, "While it is impossible to derive any definite figure on the total number of house heating customers in the United States from these reports, as many companies are in the regrettable position of not knowing the number of their house heating customers, the tabulation covers a sufficient portion of the industry to indicate the rapid growth of the field and serves to disclose the trends in the various types of gas-fired central heating equipment being installed in houses."

Briefly here are the important facts. The total number of gas-fired central heating installations reported by the 176 manufactured gas companies grew from 39,955 on July 1, 1929, to 47,857 on July 1, 1930, an increase of about 20 per cent. The total number of natural gas installations reported by the 31 companies grew from 40,712 to 66,664 during the same period, a growth of 64 per cent. Combining both natural and manufactured the growth was from 80,667 in 1929 to 114,521 in 1930, an increase of about 41 per cent.

The figures for natural gas do not include any form of individual room heaters which comprise a large percentage of the installations made in the southern part of the country.

The conversion burner field offers some interesting figures. The natural gas companies reported an increase in conversion burner usage of 80 per cent during the year, as against a straight gas increase of 41

per cent. The manufactured gas companies reported an increase for conversion burners of 111 per cent for steam, hot water and vapor and only an 8 per cent increase for warm air.

The figures in abriated form are shown in the table below.

These figures are, of course, open to some variance in conclusions. However, it would seem that one conclusion which can be drawn is the fact that use of manufactured gas is still a costly proposition and confined largely to houses of persons well able to pay high heating costs. These houses have been largely steam, hot water and vapor heated.

Another conclusion to be drawn is that the introduction of natural gas levels this situation and throws gas open to the man of smaller means who heretofore has largely used warm air for his heating medium. Of course this situation is undergoing change as air conditioning takes warm air into the more costly home.

More important than these two conclusions, though, is the fact that gas is growing in popularity with a swiftness which is likely to catch the manufacturer and the contractor asleep unless he watches his step. Thousands of units of increase in a single year cannot help but disrupt established heating ideas.

It is well to keep in mind that introduction of natural gas is being pushed in dozens of centers of population. The supply seems inexhaustible and the demand for the product beyond ability to supply. Millions of dollars of capital has been poured into natural gas and millions more are ready for use.

The contractor realizing this situation, should try to pave the way for his future efforts by talking gas fuel to those who can now afford to use manufactured gas. One way this can be done is by the sale of conversion burners or gas furnaces for fall and spring use. Once a customer finds how suitable gas is, the more he will use his equipment. Then when natural gas comes in, or manufactured gas rates drop, due to increased load, this part time user is a ripe prospect for a straight gas furnace sale.

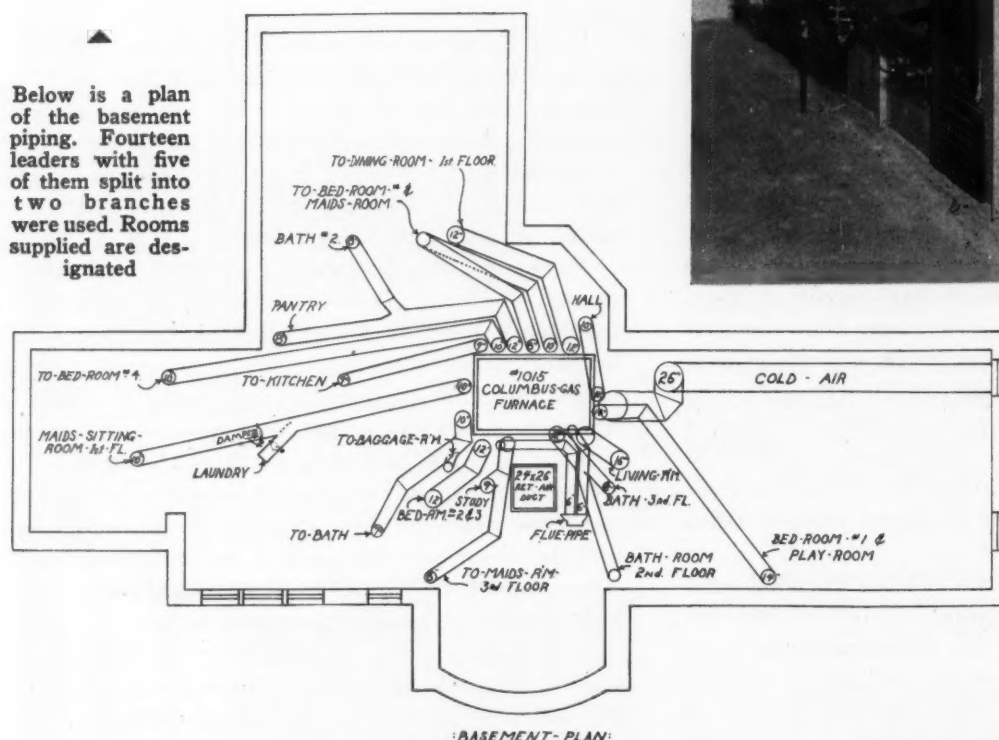
Total Gas Fired Central Heating Installations July 1				Straight Gas Designed Jobs						Conversion Jobs					
				Steam, Water, Vapor			Warm Air			Steam, Water, Vapor			Warm Air		
				1930	1929	Increase	1930	1929	Increase	1930	1929	Increase	1930	1929	Increase
Manufactured Gas	47,855	39,953	19.8%	23,217	18,026	28.8%	15,380	14,317	7.4%	2,090	988	111.5%	7,168	6,622	8.3%
Natural Gas.....	66,664	40,712	63.8%	5,565	4,106	35.5%	17,803	12,492	42.5%	9,039	5,128	76.5%	33,300	18,341	81.6%



# Architectural Cooperation

## Enables Trask Heating Co. to Sell Jobs Like This

Below is a plan of the basement piping. Fourteen leaders with five of them split into two branches were used. Rooms supplied are designated



The furnace is a Columbus gas fired, two burner heater. No division is made in the casing. Humidification is automatic. Note that leaders are uncovered, but have the joints stripped

**F**ORTY-SIX years ago, in 1885, there was organized in Boston a new heating firm—the Trask Heating Company. When this organization first began to install heating systems, knowledge of warm air heating was very rudimentary and mostly designed by rule of thumb. In the intervening forty-six years this progressive company has witnessed and been a factor in the stupendous changes which have taken place. During this long period of service to home owners, the Trask company has installed hundreds of heating plants

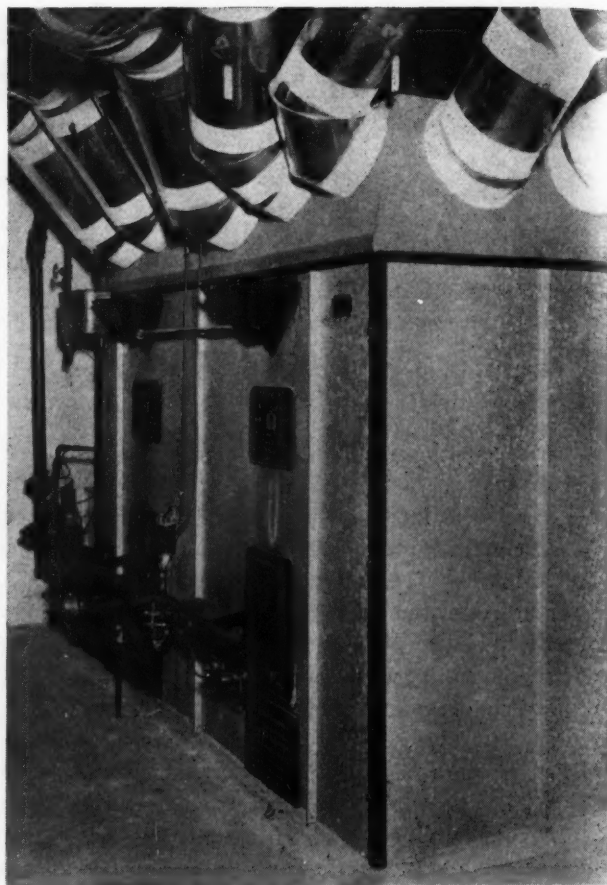
in all types of houses and using every variety of fuel—coal, oil and gas.

Almost from the firm's beginning it has followed one policy which has been largely responsible for the success attained—the policy of cooperating with architects to give the builder of a new home or the remodeler of an old home the very best heating system possible. This principle of architectural co-operation has brought to the firm dozens of jobs which may rightly be classed as exceptional.

This co-operation with architects

has made the firm a leader in the development of conditioned air for the large home. By working closely with the architect and planning the heating system as the architect prepares the plans for the house, the firm has established itself as a competent contractor of good heating systems.

Some of the forced air systems use coal, others oil, and others gas. Of the three, the use of gas has called for the best designing, since Boston and its suburbs use manufactured gas with a B.t.u. content of 535, and the heating plant must





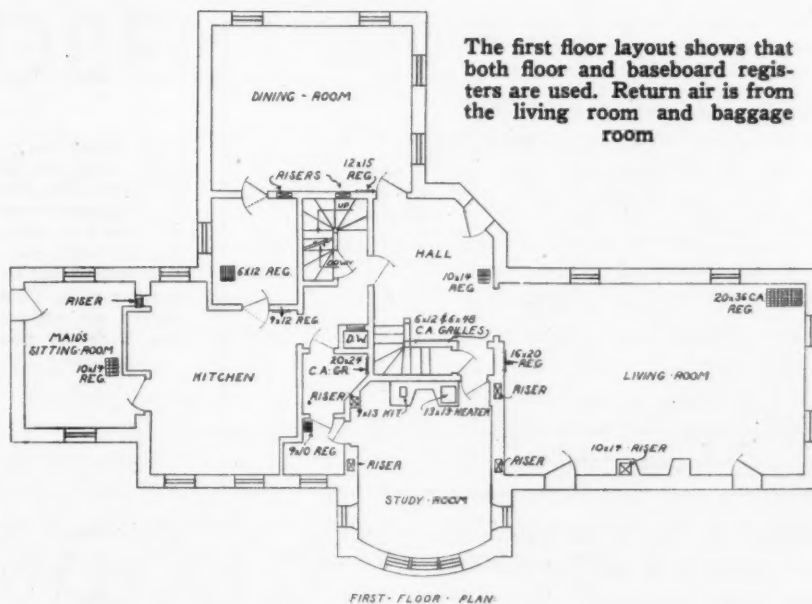
be efficient or heating costs become burdensome.

How the lessons of design and architectural co-operation are applied to the problem at hand are well illustrated by the installation pictured and told about on these pages.

Early last winter the company completed a gas fuel installation for a doctor residing in a Boston suburb. The house is new and was designed especially for the owner's requirements. The house covers a large area and has occupied rooms on three floors. The construction of the house consists of an exterior shell of stucco on metal lath, paper and sheathing. Then come 4-inch studs, Celotex plastic base, and the interior plaster.

The heating system designed for the requirements of this particular house has a number of features worth attention. One such feature is the restricted handling of return air to the furnace. No return air is taken direct from the second floor, but the two stair wells with room doors opening into them are depended upon to provide circulation to the first floor.

On the first floor return air is concentrated in two ducts. From the far corner of the living room one long return duct is carried



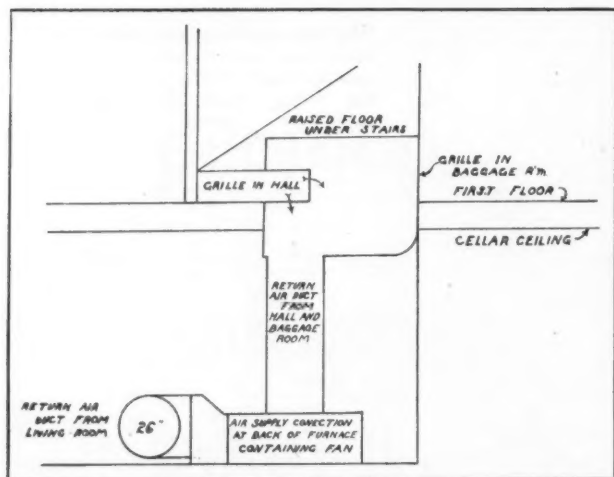
through the basement to the heater room. In the center of the house a large return duct opens into the main stair hall through a vertical grille placed in the side of the stair partition. This same duct also opens into the small baggage room through another upright grille set in the wall. This baggage room opens into the kitchen and rear hall. A grille in the door to the rear hall also assists in bringing air from the dining room through the two dining room doors. One of the detail drawings shows how this duct is arranged.

Another feature of interest is the use of both floor and baseboard registers, depending upon the exigencies of the room. In some rooms baseboard registers were not possible because of built-in fixtures; in other rooms only a floor register could be used—for example, bath No. 2 on the second floor, where the register had to be placed right in the doorway.

Two interesting registers are those used in the living room on the first floor and the living room chamber directly above on the second floor. In these two rooms the



The house is a large stucco covered structure. Rooms are large and exposure severe. The connected garage is not heated from the house. Attic rooms are occupied



This detail shows how cold air is brought out of the baggage room and the rear stair hall through vertical grilles set in the wall. This return air serves the back of the house

registers are set in the side walls from the floor up and are considerably larger than usual. The grilles are old organ screens painted to match the woodwork. The valve controlling these registers is located in the register box and is operated by silk cord and tassel. The floor plans show the location and sizes of these screens.

The floor registers are all dull statuary bronze finish on cast iron. The design used is plain lattice. The registers in the dining room, study and kitchen on the first floor and three largest bedrooms on the second floor are located in the baseboard and are painted to match the color scheme of each room.

There is a very interesting riser in the installation, the one feeding the living room chamber on the second floor and the playroom directly above on the third floor. The riser for these rooms is carried up through one of the flue passages of the living room fireplace. At the second floor level a 12 by 15 inch register is placed in the wall, while a 10 by 14 inch riser continues on through the bedroom fireplace flue to exhaust in the side wall of the playroom. These two registers are supplied by a 14-inch round pipe leader.

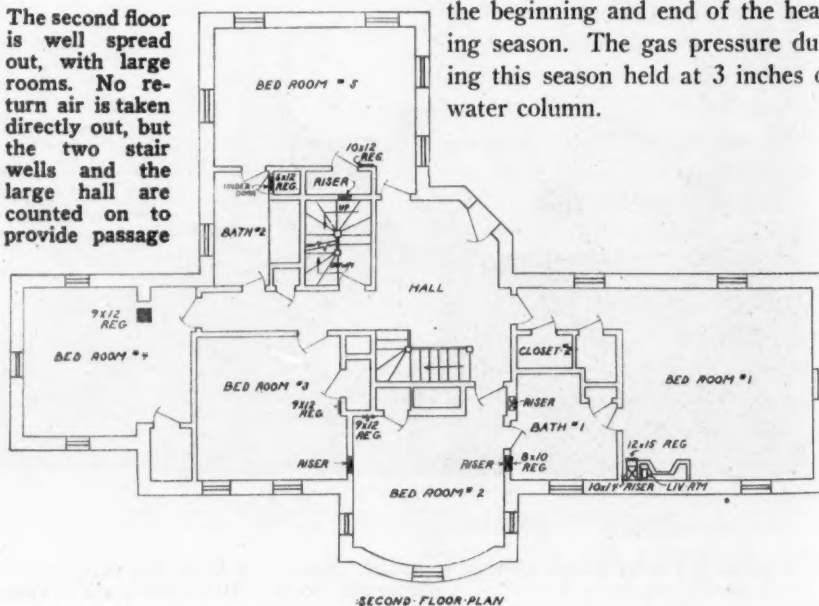
The leader which supplies the maid's sitting room on the first floor also has a branch exhausting into the laundry of the basement. This leader is controlled by a damper in the basement which is turned to divert the air into either one or the other rooms, but not to

both at once. The basement is warmed by the hot water heater, the radiation from the furnace, and the water storage tank. The supply of warm air is used principally for drying and is shut off when the laundry is not in use.

All the basement leaders are round pipe, bright tin, with the joints covered with strips of asbestos paper. Dampers are placed in each pipe close to the bonnet and each damper is designated by a metal tag wired to the handle. This tag carries the name of the room supplied by the pipe.

The system was designed for forced air, but gravity action is available through the by-pass of the Miles 1500 L.S. fan which is used. The blower is controlled by a bonnet thermostat operating independently of the burners or the house

The second floor is well spread out, with large rooms. No return air is taken directly out, but the two stair wells and the large hall are counted on to provide passage



thermostat. A separate switch is provided for summer circulation. The fan blows through both furnaces, as there is no division between the units.

Action of the gas valve is controlled through a thermostat placed in the first floor hall and set at 70 degrees. The furnace used is a Columbus No. 1015 using two burners. Humidity is assured by the two automatic humidifying pans which are a part of the equipment of this furnace.

It may be of interest to study the heating costs for this house on its 535 B.t.u. gas. Here are the figures from the records of the Boston Consolidated Gas Company:

	Cu. ft.	Net bill
Sept. 18-Oct. 20..	19,000	\$15.20
Oct. 20-Nov. 19..	48,000	38.40
Nov. 19-Dec. 22..	96,700	77.36
Dec. 22-Jan. 20..	114,300	91.44
1930		
Feb. 19-Mar. 19..	79,600	63.68
Mar. 19-Apr. 21..	45,900	36.72
Apr. 21-May 19..	22,100	16.78
May 19-June 19..	7,600	9.79
1931		
Total.....	529,500	\$426.41

These figures indicate that during the period of heaviest consumption, December 22 to January 20, the heat loss of the building averaged around 600,000 B.t.u. per hour, but that the loss scaled down to an almost negligible total toward the beginning and end of the heating season. The gas pressure during this season held at 3 inches of water column.

# SPANDREL WATERPROOFING

**P**ROTECTION of masonry against moisture penetration is rapidly becoming of greater importance as curtain walls become thinner to meet the demands for lighter building exteriors. Current practices and specifications differ widely, ranging from absolute protection to those sketchy practices which make protection doubtful.

Seemingly, there is no uniform practice followed by architects. Because of this, the sheet metal contractor who works with architects is afforded an excellent opportunity to act in an advisory capacity to designate good practice as against poor practice.

The drawing which is reproduced on this page shows a standard spandrel waterproofing specification used by the architectural firm of Gilbert and Betelle of Newark, New Jersey. Gilbert and Betelle are the school architects for the state of Delaware and have a reputation as designers of Colonial architecture.

The standard spandrel waterproofing was worked out as a result of this firm's experience in school architecture. They have found that no structure receives less maintenance after completion than a school building. As a result of this negligence it is up to the architect to so design his structure, especially the protective measures, that deterioration from weathering is minimized.

There are several points about this specification which are noteworthy. Underneath and behind the sill a sheet of lead is molded to the contour of the masonry. This lead sheet is carried up behind the wood or steel sill of the frame and turned into the frame. At a point half way out the frame sill a galvanized water bar is sunk

into the sill. The space behind this bar and back to the lead sheet is caulked with Oakum and Elaterite Mastic Cement.

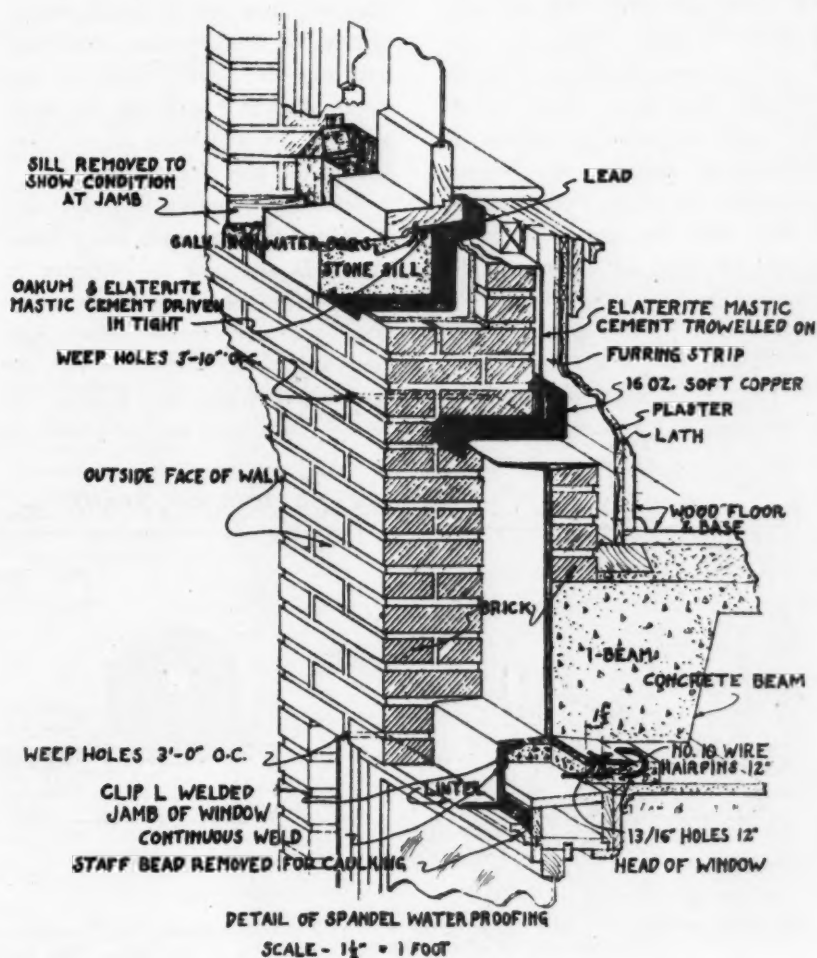
Another feature of this sill protection is the way the edges of the sill are separated from the masonry by carrying the lead sheet up one course of brick and maintaining this measure along the vertical and horizontal contours to a point level with the inside sill.

It will be noticed on the drawing that the girders carrying the curtain walls are covered on the top with a soft copper protecting sheet turned down over the edge behind the masonry and up one and one-half courses flush with the inside edge of the top flange. This sheet acts as a protection for the steel

This discussion of spandrel protection is offered in the hope that it will lead to more and better protective measures on our public buildings. Incidentally, the better the protective measures followed, the more work there is for the sheet metal contractor. You are invited to submit specifications you consider exceptionally good or particularly bad as used in your community

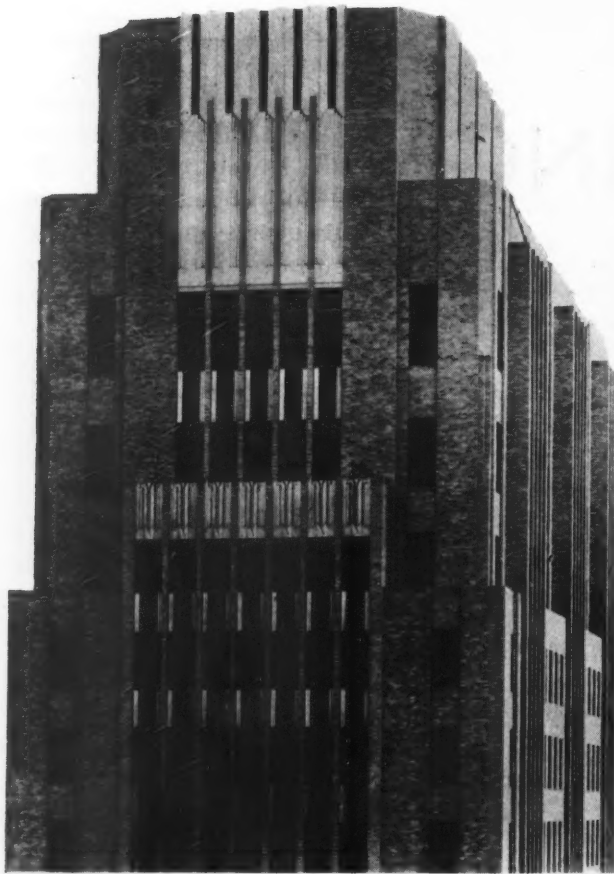
work and also for the inside walls.

Additional protection is provided at this point by inserting weep holes at 3-foot centers to drain any moisture which may collect on the top of the copper sheet.





# Aluminum— Ornaments



The top of the building is ornamented by two tiers of 30-foot aluminum spandrels cast in three sections. These high spandrels finish out the spandrel ornamented front elevation. The metal also lightens the weight of the exterior wall

production of the most elaborate sculptural design. Spandrels have been made from practically every metal which can be cast or worked—bronze, lead, zinc, iron, steel and aluminum. This latter metal has found popularity because of its color, lightness and easy working qualities.

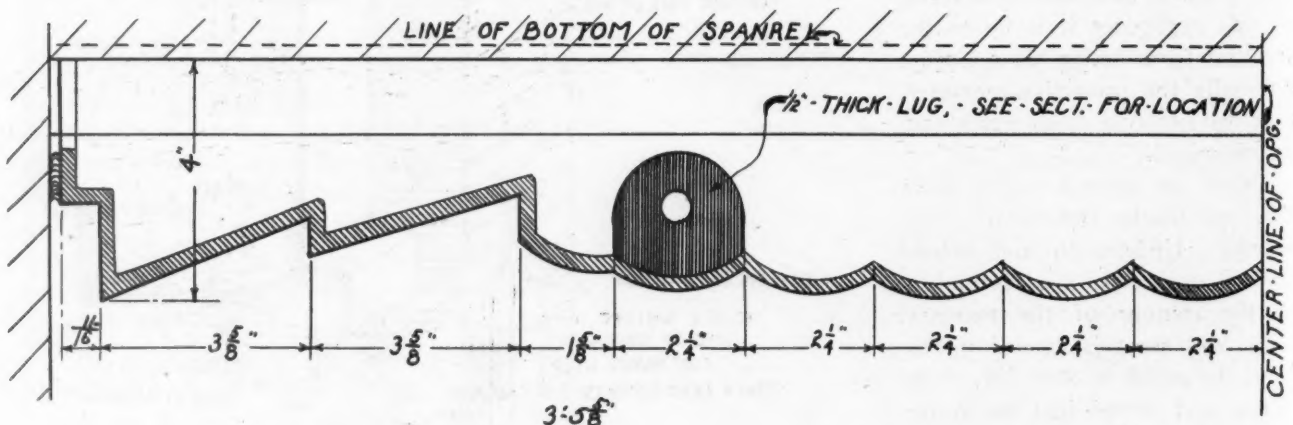
In Philadelphia there was completed and opened this year an office and store building on which most of the front elevation is surfaced by aluminum spandrels. This building is known as the 1616 Walnut Street Building and is "another Greenberg project," owned by Joseph J. Greenberg. The architects are Tilden Register & Pepper of Philadelphia. The contractor who cast and erected the spandrels is the General Bronze Corp., of New York. The general contractor was Wark and Company of Philadelphia.

Most of the spandrels used on the building are of one design. The floor spandrels are two-toned having the extreme vertical portions highly polished and the central portion deplated. The general design

IF 1930 and 1931 had not suffered a sharp decline in commercial construction, it is highly probable that these years would have seen the rapid expansion of architectural changes just becoming evident in 1929. For example, in that year, the use of metal to lighten the load of exterior walls gained impetus through the use of metal spandrels on dozens of large buildings in all parts of the country. During the last two years what construction has been done has em-

phasized this new trend in architecture. It is likely that when construction is again resumed the metal fabricator will find his work more in demand than at any time during the last twenty years.

Buildings adopting this new idea of lighter exterior walls using metal spandrels are now in evidence in most cities. Some of these spandrels are cast metal—others are fabricated from sheet. So far, the cast spandrel has had a little the better of the race due to easier re-



This cross section of a half spandrel shows the division between high polished and deplated finishes at the line marking the beginning of the fluted center portion of the face. This also shows the holding lug



# Cast, Sheet, Extruded Philadelphia Office Building

of the spandrel is shown by the photographs. How the spandrel was secured in the wall is illustrated in the detail drawing showing a cross section of the face.

One hundred forty-nine floor spandrels were used.

The design of the spandrel is of modern thought depending upon parallel flutes to provide ornamentation. This vertical fluting also emphasizes the height of the building and provides an eye carrying

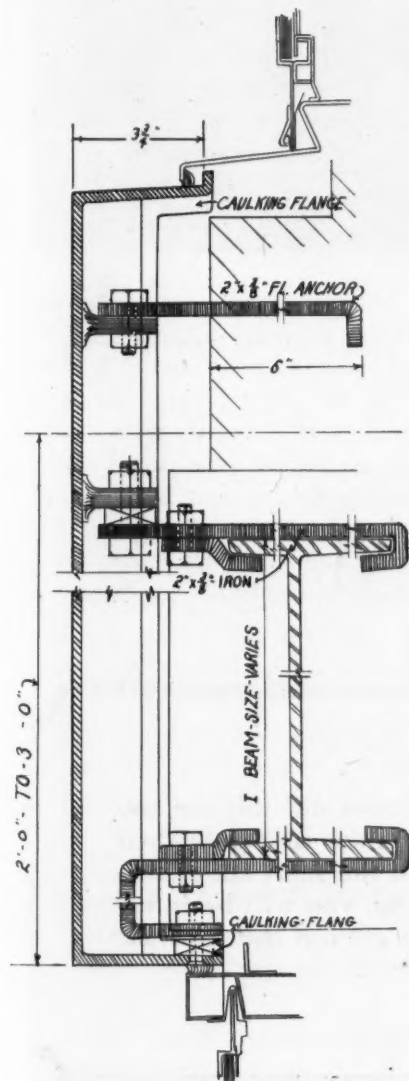


The elevator interiors use sheet, bar and cast aluminum for ornamentation

of 2 feet to 3 feet in height. All the floor spandrels are of the same width—3 feet  $5\frac{7}{8}$  inches set in a brick opening of 3 feet 6 inches. The space between the edge of the spandrel and the brick is caulked.

A somewhat different plan of holding the spandrel in the wall was adopted. Each spandrel was cast with four lugs drilled to take a  $\frac{5}{8}$ -inch bolt. Behind the spandrel the structural framing was left exposed enough to bring through a special steel anchor which was clipped to the flanges of the structural frame. These anchors were bolted to the spandrel lug. To complete erection the spandrel was then caulked top and bottom at the window framing and the two sides at the brickwork.

At the top of the building there are twenty special parapet spandrels of considerably larger size. These spandrels are 30 feet high and had to be cast in three sections



medium which brings out the ornamentation at the top of the central bay. The spandrels vary in height, but are confined within the limits

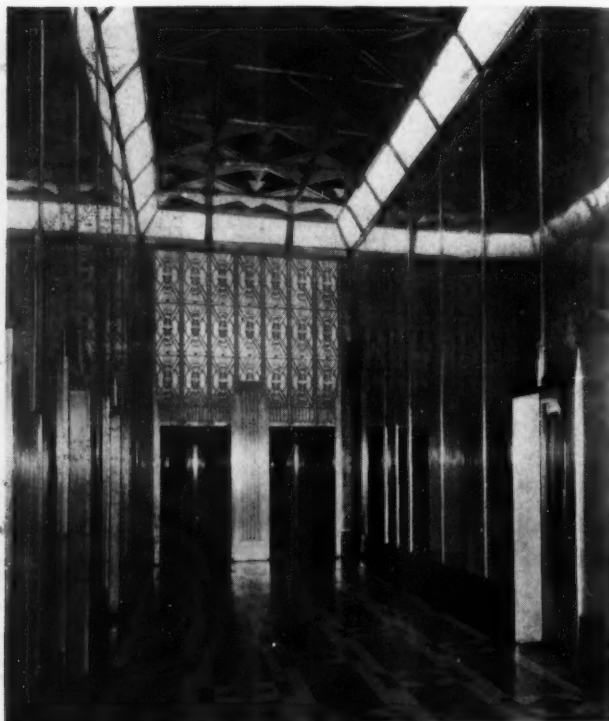
Left — Section through a spandrel showing how the units are held into the wall. The steel clips project through the back-up masonry. The edges are all caulked for moisture protection

Right — Close view of some of the spandrels showing the color differentiation between the deplated center and the polished outside edges. The only masonry is the narrow mullions between windows





At the left is the ornamental aluminum work on the stairs and at the right is the main lobby decorated in sheet, cast, and extruded aluminum. Details are given in the story



to facilitate erection. One of the photographs shows a closeup of these spandrels. The design varies somewhat from that of the floor spandrels, but fluting is again used as the theme of the design. These spandrels are secured in the same manner as the smaller units. They differ in coloring, however, in that they are satin finished rather than polished or deplated.

The entire lobby of the building is a striking example of ornamentation through the use of metal. In this building the metal used is alu-

minum and was used in extruded, bar, in sheet and in castings. The photographs show some of the beautiful effects obtained.

Briefly the mailbox is cast with the chute of extruded metal. The Directory board is of cast and extruded sections. The walls are St. Genevieve golden vein marble with each slab set off by a framework of

extruded aluminum satin finished.

One of the photographs shows the lighting effect of the lobby. The ceiling panel holding the concealed lights is a cast frame with extruded glass members. The door which leads from the lobby to the garage at the rear is fabricated from sheet and tubing.

The elevator cabs are striking examples of metal adornment. The entrances and doors are cast sections while the cab tops are fabricated from sheet. The side walls of the cab are walnut wood panels with a molding strip of metal between each pair of panels. The decorative frieze around the top is cast metal while the hand rails are bar stock.

**It has been brought to our attention that a lot of contractors did not see the the announcement of the Overton Engineering Service which was first published in the June 22 issue. Space here does not permit giving all the facts about this service. If you are doing or expect to do forced air heating, you will be interested in this service. If you didn't read the advertisement get out the June 22 issue and look at the inside back cover**

# LET'S MAKE SOME MONEY

by  
BENJAMIN F. JOHN



## HEATING CONTRACTORS IN NAME ONLY

**H**AVEN'T you noticed the improvement and expansion of home warm air heating during the past three years?

If you have, you have noticed the beginning of five and more years of very profitable business for the heating contractor who will study and practice to meet the demand for the highest type of heating ever known to the heating profession. With proper advertising and proper installation this new heating will sweep the country, and the price will be right.

Do you doubt this statement? Then just look at the large companies that have been formed and are being formed to take over this business, and note the new and larger companies that are now manufacturing the new types of equipment. Examine the actions and plans of the utilities and large oil burner companies and you will soon be convinced that the problem of heating the home at a fair price will be solved in every respect, and by air heating. Soon the public will recognize this through increased advertising. Can you deliver the goods, if asked?

From the dusty "old hot" heater, using cellar air, there has been but three steps so far in this improvement. If you will just think back you will realize that this all has happened in just the last ten years.

These three steps have been:

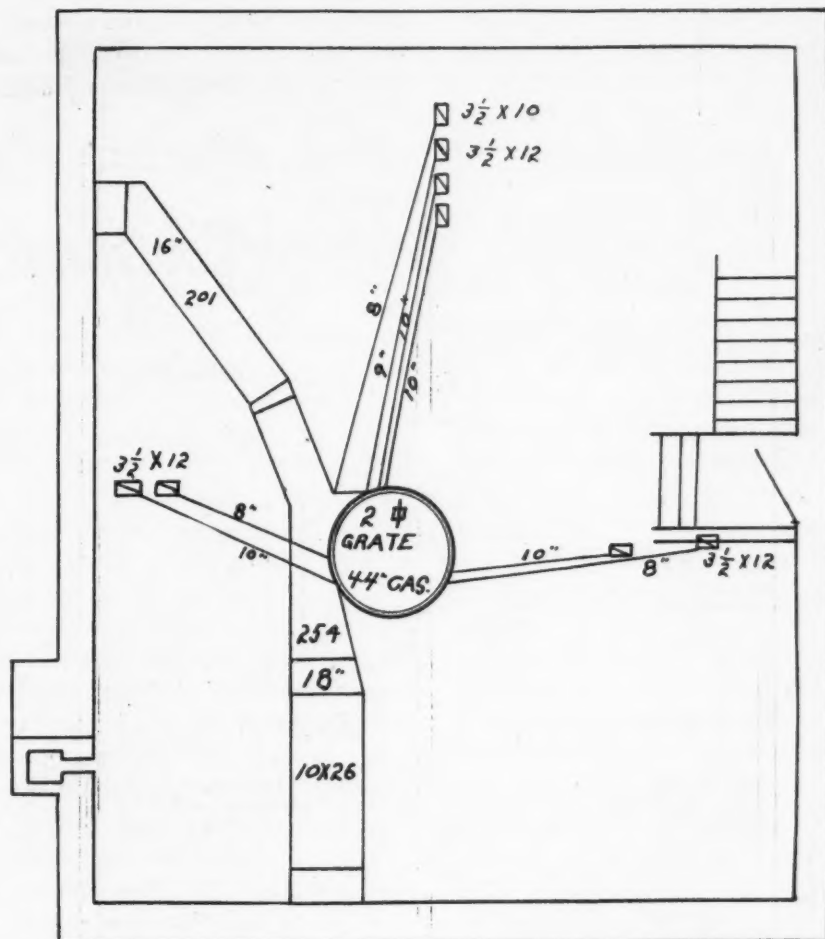
1. The gravity recirculating system.
2. The fan (forced air) recirculation, round pipe system.

3. The fan (forced air) recirculating system, duct pressure system.

Each one of these systems is fitted for certain types of homes or other buildings, and to each one may be added adjuncts to make the system partially or fully automatic, clean to a high degree; air tight, and designed to deliver a real relative humidified atmosphere, as desired.

Will the trade sell its birthright, as a merchant mechanic, for a mess of pottage, or leavings? It need not.

Why not accept the challenge and study the new systems that have been installed? Add to the mechanical ability, and enter this new field for profit? If this is done by any small or average shop nothing can stop them from sharing in this



Basement layout of the basement heating system. This is a gravity plant using round pipe for the warm air and rectangular ducts for the return air



next five and ten years of good business.

To do this it is necessary to know all about these three systems of heating and cooling; not only how to install, but to install scientifically as well as practically; to plan and study out each new adjunct and make use of it.

And if we wish to stay in business and build a reputation and make a profit we must remember certain first principles, and work toward them when we are called to estimate on a new construction or even a replacement.

Among these are:

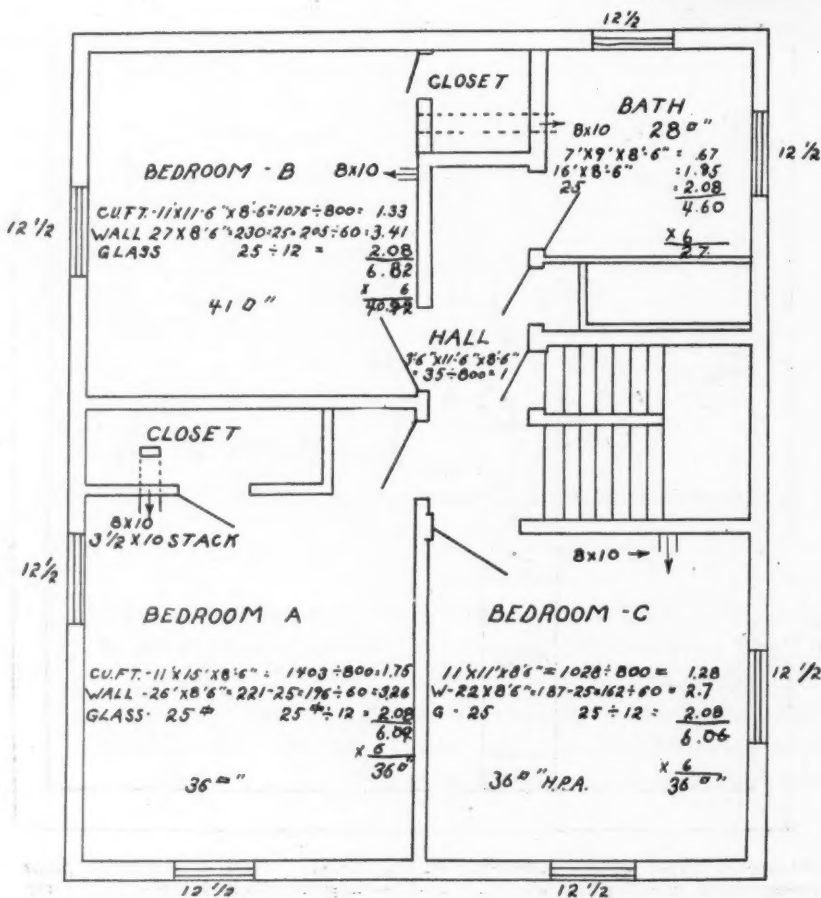
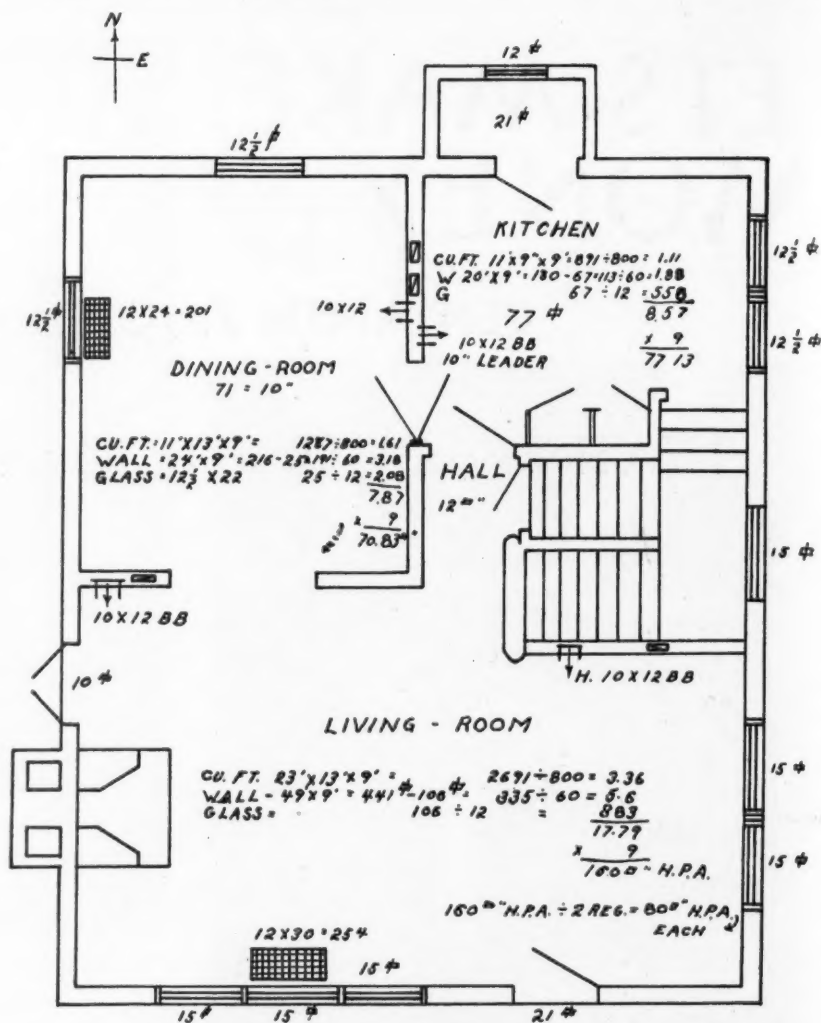
1. Comfort.
2. Economy of operation.
3. Cleanliness.
4. Long life.

And under each of these headings are included:

#### Comfort

Proper temperatures.

Even temperature throughout the building.



Above and to the left are the floor plans for the house. All standard code calculations are given for each room. Take your pencil and check the figures. If you find any errors write us

Proper relative humidity.

Automatic, within the means of the owner.

#### Economy

Proper size heater and piping to prevent forcing and to lengthen the life of the heater.

Proper draft regulation to save fuel.

#### Cleanliness

Tight construction of heater and all piping.

#### Long Life

A heating system, thus constructed and regulated, will cost a small yearly average amount over a period of years.

It is absolutely true that many prospects or customers are insistent that they just want so much work done, and do put off that which should be done. Oftentimes,

though, the heating contractor who knows can explain the saving from a proper installation, and overcome this objection. If only a part is done at that time, it should be done in such a manner that the balance of a high class system may be added later, at opportune times, until a complete system is finally installed. This has been found to be good business. Prepare ahead for future work the next season.

It must be remembered always that in this day we must learn to *solicit* and *sell* in a far different manner than ever before and if the majority of merchant mechanics, small and average, will study air heating and cooling, and visit the good jobs installed by others and study them, they can reap a benefit never before realized.

To help along the cause of this new system, and those who wish to study for profit and pleasure, the following systems are presented, all of which are giving good service, not only from the standpoint of sufficient heat, but from the standpoint of minimum expense.

To these original systems have been added other adjuncts for automatic controls; humidity, fans, blowers, etc., which proved to be additional good business.

### Heating System No. 1

Plan No. 1 shows a plain recirculating heating system which was installed in a number of country homes with six rooms and bath. Out of 22 houses of this type, 15 were warm air systems. Since being installed, other things, such as fans for cooling, heat regulators, filters, etc., have afterward been added. Sufficient room and proper provisions were made when installed for these additions.

The owner and builder had previously installed hot water in the houses he built. Plan No. 1 was presented and explained and he was shown a similar job in another house. Finally he agreed to try one, and see if it would sell, and it did. It's a long story, which might be interesting to some, at another time. The two sample houses used from which to sell others, one had a

hot water system and one warm air.

These systems were installed in the Fall of 1925 and Winter of 1926, and all are still giving satisfaction, with very little upkeep.

Haven't you always wished that a plan when presented would contain *all* the information right on the plan, so that you might read it all at once? I have. Well, here it is on the face of the plan.

This type of house is erected most anywhere in the country. In numbers it probably exceeds any other dwelling. It was in great demand and will be after the depression is over. Each house has ground all around it, and the price is within the reach of the average person.

Read the plan and then get out your pencil and check up just where you would alter it for better service. Criticise it hard. Move the heater. Figure the rooms and risers, etc. Just see if you cannot make a better system. Then you will be doing yourself a service, because you will then always remember what to do, or what not to do.

## The Automatic Heating Market

THE live warm air heating contractor should be vitally interested in the sales possibilities of this much discussed automatic heat. Here are some figures showing just what this market consists of.

There are approximately 350,000 warm air furnaces sold in an average business year. It is estimated that some 100,000 oil burners and 10,000 coal stokers are sold each year to home owners. The difference between 110,000 and 350,000 represents the number of furnaces which will be hand fired.

And this 240,000 also represents the number of installations which might be converted to automatic heating providing the warm air heating contractor personally, or through a tie-up with a salesman of burners or stokers, took time to

explain to the furnace buyer just what are the advantages and conveniences of automatic heat.

These figures apply, of course, strictly to warm air heating. It is estimated that there are some 9,000,000 homes now using obsolete hot water, steam or vapor systems which supply nothing but heat. The owners of these homes, especially if they are planning remodeling, are likely prospects for the story of air conditioning as the warm air heating contractor can supply it.

Coupled with automatic heat, air conditioning makes a story few home owners can resist. Lack of money alone will prevent every home owner from buying our service if the story is present in all its astonishing details.

The fact that so many new pieces

of equipment now coming on the market are especially designed for the use of oil burners, stokers, blowers, filters, either furnished as a part of a complete unit or provided for in the design, is evidence enough that all forward thinking men in our field consider automatic heating the coming type of home system.

While these specially designed automatic heating units are finding their way into American homes, the live contractor is not overlooking the sales and profit possibilities in selling automatic heat through the addition of accessories to present plants. Such accessories can be sold all at once or piecemeal.

The size of the field is limitless—salesmanship is all that is required.

Reducing the intensity of "lath marks" by installing insulation in the inner wall space. The section of the wall to the left of the arrow was insulated with 1-inch balsam-wool. The other half was uninsulated



## Some Scientific Facts on WALL DUST STREAKS

AS is well known in heating circles only a small part of the dust that begrimes furnishings, walls and ceilings during the winter heating season has the heating system as its source. A greater part of it filters into the house through the cracks around windows and doors. Some is due to the excessively dry atmosphere that characterizes homes during the heating period. Only a small portion emanates from the heating system, and even this would be practically nil were persons to exercise ordinary care in firing and maintaining cleanliness around heating plants and fuel supply.

Nevertheless, the heating system gets most of the blame for household dirt, and the feeling of resentment is enhanced when the owner has to pay the cost of redecorating walls and ceilings because of the dust streaks that disfigure them. The cause for these dust streaks has long been a mystery. As a matter of fact few persons are able to say whether the streaks are over the lath or between the lath and many theories have been advanced as to

their formation. Some have held that they are due to porosity of plaster, to condensation causing adherence of dust particles, and to electrical phenomena, but all these theories may be now discarded.

It has been definitely established that dust streaks are directly caused by thermal conditions, involving slight variations in the temperature of plaster between wood lath and plaster over wood lath. This find-



How insulation helps preserve cleanliness of wall surfaces. On wall section at left, protected by 1-inch layer of balsam-wool as indicated by Dr. W. J. Hooper, the dirt accumulations are almost negligible, while the section at the right, unprotected, is similar to wood-lath plastered walls and ceilings in many uninsulated structures



ing is the result of extensive experiments made under the direction of Dr. W. J. Hooper of Battle Creek College, Battle Creek, Michigan, in collaboration with the Wood Conversion Company of Cloquet, Minnesota. He substantiated his findings by demonstrating that he was able at will to cause lath-marks to form either over the lath or between the lath. He further proved that the formation of dust streaks can in large degree be prevented merely by the use of standard insulation in the frame of the wall or ceiling.

Here is what happens, Dr. Hooper's tests revealed, to produce the unsightly marks that sometimes expose the anatomy of a wall or ceiling almost as clearly as would an X-ray photograph.

As air, carrying the dust particles, passes over the surfaces, it comes in contact with areas of different temperature. These differences are present because plaster and wood have different values as heat conductors, plaster being a better conductor than wood. Years ago, it was discovered that a hot body seemingly repels dust, whereas dust will deposit itself freely on a cold body.

That is what occurs on a wall or ceiling of plaster and lath and Dr. Hooper's explanation is this: "The air molecules," he says, "are the players and are constantly striking the suspended dust particles which are driven about the atmosphere as a result of this bombardment in a sort of volley ball game. Next to a relatively warm wall surface, the players are very active and they play more energetically than the slow, sluggish players next to the cooler surfaces. One would naturally expect the more alert players to be the more efficient in keeping the ball off their court and so they are!

"In this game of molecules, the volley ball dust particles are most frequently driven to the wall and lodge where the cooler and more inactive team is less effective in driving them back."

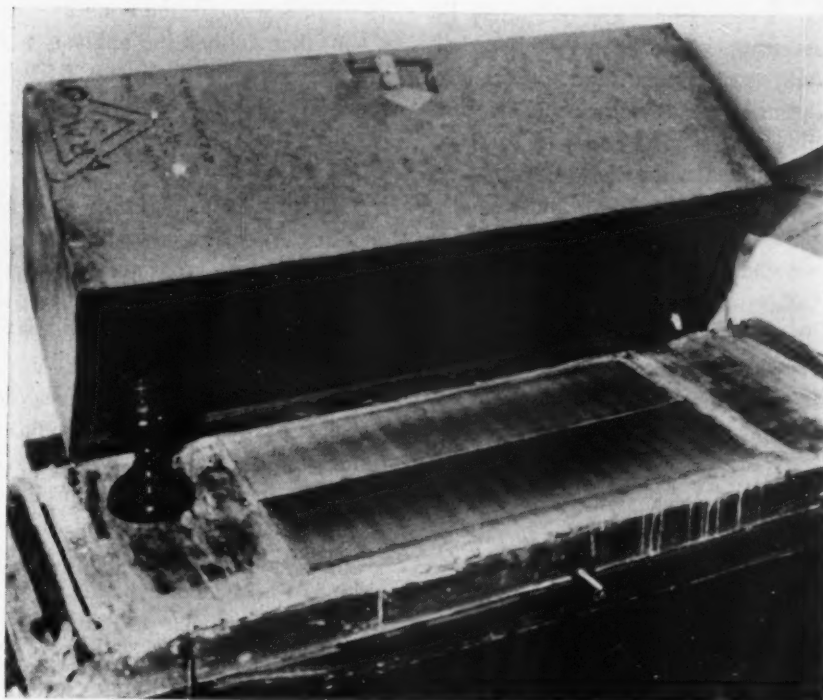
In conducting the tests, a port-

able section of a wood and plaster wall was constructed, the upper surface covered with wall paper. A smudge was produced by a smoking kerosene lamp. At first no lath marks appeared. Then the windows in the laboratory were opened so that a draft of cold air could circulate underneath the sample wall. The lath marks quickly formed. A result had been produced but its cause was still a mystery!

The investigators knew that star-

were deposited directly over the lath instead of between them as is the usual case in a dwelling. This pointed the final finger to the real cause of the mystery. Half the section was exposed to hot air and half to cold. The section exposed to the hot air was marked with streaks directly over the lath but in the other half, the marks appeared between the lath.

The mystery was finally solved. Due to the principle that a warm



Convincing evidence that "lath marks" are a result of thermal conditions. The test wall section was partitioned through the middle, and by the introduction of cold air and warm air currents Dr. Hooper produced "lath marks" between the lath and over the lath

ting electrical effects are often produced by sand storms sweeping over desert areas. They found by test that a plastered surface could be electrified by a draft of air. In order that possible electric effects might be eliminated they cemented a sheet of aluminum foil to the wall surface and underneath the wall paper. Still the marks appeared. A sheet of ordinary window glass was embedded in the surface of the plastered section but the marks continued to form.

Next, a draft of heated air was introduced instead of cold air. A remarkable change took place. The marks appeared but in a totally different position. The streaks of soot

body seemingly repels dust marks whereas a cool one attracts the deposit of dust, the soot was deposited over the lath in the hot air section because the lath, being poor conductors of heat, remained cooler than the other areas. In the other case, the plaster between the lath was cooler and hence was marked, because the lath due to their relatively poor conductive quality remained warmer.

Having thus solved the problem of the appearance of the marks, Dr. Hooper then sought a way to prevent them from forming. To do this, he constructed a wall section in which the temperature differ-

(Continued on page 31)

## SOME POINTERS ON

# Welding Allegheny Metal

By G. VAN DYKE

Joseph T. Ryerson & Son, Inc.

**A**LLEGHENY metal is a chrome-nickel iron alloy containing approximately 18 per cent chrome, 8 per cent nickel and small amounts of manganese and silicon. The carbon in this alloy will vary from 0.15 to 0.06, depending on the class of work for which it is to be used, and also the method of manufacture by which it is to be fabricated.

Because this particular type of alloy lends itself readily to welding by the electric, gas or spot processes, its production has opened up a large field of application.

Of the various analyses of "stainless steel" which have been produced, the 18-8 type is one of the most useful, and finds a wide application not only because of its weldability but because it presents great resistance to a great variety of corrosive attacks.

It must be borne in mind that no material which has so far been produced is really "stainless" in the true sense of the word. Glass, gold, silver, lead, hard rubber, stone and any other known material can be attacked and corroded by one or more chemical reagents.

In determining the value, therefore, of 18-8 or any other corrosion resisting alloys for a certain application, the metal should not be called upon to resist all types of corrosion, but rather should the question be raised as to whether the metal is sufficiently resistant to corrosion to satisfactorily take care of the particular job which is under consideration.

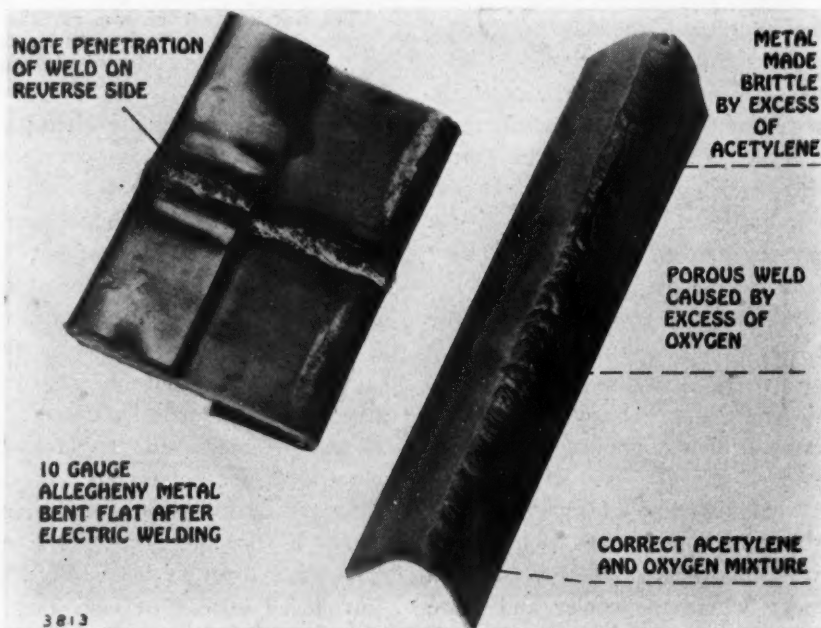
The corrosion resistance of an alloy depends not only on its composition but also on the care taken in its manufacture and upon its

structure. Bearing this in mind, it is very important that the welding of this alloy should be done in such a way that neither the analysis nor the structure of the metal will be changed; and for this reason, the chemistry of the flame in gas welding is of vital importance.

The first consideration in gas welding Allegheny metal is to get the proper mixture of acetylene and oxygen. If an excess of oxygen is used, it will burn up or oxidize a considerable portion of the chromium, and this not only changes the analysis of the metal but produces oxides of chromium which will cause the metal to boil and produce welds which are porous and of low corrosion resistance value. If an excess of acetylene, which is a compound of hydrogen and carbon, is used, the molten metal will absorb a certain amount of the gas and the

carbon content of the weld will thereby be raised. This increase in carbon content is very detrimental to the corrosion resistance and produces a brittle weld.

From what we have said it would appear that an exactly neutral flame with neither an excess of acetylene or oxygen would be desirable, and if it were possible to get such a flame, it would probably be ideal. In actual practice, regulators are not sufficiently accurate to produce a truly neutral flame and, therefore, the lesser of two evils must be chosen, and the flame should be adjusted so as to give a very slight excess of acetylene which is indicated in the flame by very short "feather tips" on the end of the combustion buttons. In gas welding this alloy, the torch should be held as close to the metal as possible, so as to push the flame down



These details show a good weld and also two pieces of metal joined by first a good weld, next a porous weld, and last a brittle weld. The text explains how these welds are made and avoided



into the weld; and the rod should be held above the weld so that it will melt and drop down as you go along. Puddling should be avoided, as it tends to produce a porous weld. If the flame is properly adjusted and sufficient heat is used, the Allegheny metal rod will melt freely and will drop down in clean drops.

For those who like to use a flux, I recommend the product of the Oxweld Acetylene Company, known as "Chromaloy" flux, which has a tendency to make the metal flow a little more freely and is of assistance in securing deeper penetration.

I would recommend the use of a tip one or two sizes smaller than would be used on the same gauge of steel and in most cases, about five pounds pressure on both the acetylene and oxygen will be found sufficient.

It is essential that accurate regulators be used so that a uniform mixture can be maintained continuously.

In electric welding Allegheny metal by the metallic arc process, we do not have to concern ourselves with flame chemistry as we do in gas welding. It is important, however, that the rod be of the right analysis and that the coating on the rod be of such a character that it will produce sound welds, deep penetration and a bead of equal corrosion resistance to the parent metal. The production of and coating of the rods is a technical matter which is best left to the manufacturers of the metal, and if any good operator will bear the points mentioned in this article in mind, he will be able to produce a good job.

In the first place, reversed polarity should be used. That is to say, that the electrode should be connected to the plus pole of the generator and the work or ground connected to the negative pole of the generator. It is well to use rather less power than would be used on a similar gauge of steel, although this is a point which is best worked out by each operator himself. Some men can weld more rapidly than others and, therefore,

can use a greater amount of heat. After a little experience each operator will find the best voltage and amperage setting for his particular machine on various gauges.

A welding outfit should be provided which has very flexible controls because variations in voltage and amperage are rather critical on this alloy.

A short arc should be used partly because it will give a more uniform penetration and partly because with a short arc there is less chance of the molten metal becoming oxidized and thus producing porous welds.

Backing up is to be recommended where possible and in each case, the operator should be provided with samples on which to experiment for power adjustment and arc length before he starts on any job.

The scale produced on these welds is usually heavy and hard, and it would be found very helpful if the scale is ground off of the bead left by one rod before starting the continuation of the weld with the next rod.

There are certain general principles concerning all types of welding on Allegheny metal and I would like, therefore, to offer the following for your very careful consideration.

In the first place, when this metal is heated to any temperature in excess of about 450 deg. Fahrenheit, it will discolor or oxidize on the surface. This oxidization must be entirely removed as it will rust rapidly, and the rust will spoil the appearance of what might otherwise be a very good piece of work. Oxidization can be removed by grinding, or can be taken off by the application of a mixture of one part of commercial nitric acid to one part of commercial hydrochloric acid. This acid mixture is extremely powerful and should only be left on the metal for a sufficient length of time (probably a few minutes) to remove the discoloration. It is absolutely essential that every trace of the acid be removed from the metal first by washing with water, and then following this by a thorough washing with soap

and water in which has been dissolved some sal soda, ammonia or other alkali.

If Allegheny metal is to be used to resist severe corrosive attack, then it is essential that it should have the right metallurgical structure. This term meaning that the carbon should be in solution in the iron and not in the form of carbides which are chemical combinations of iron and carbon.

It is unfortunately true that metals of the 18-8 type if heated to temperatures within the range of 950 deg. to 1,550 deg. Fahrenheit, will during certain periods of time, and depending on the temperature, undergo a structural change in which some of the carbon will be precipitated from solution and be converted into an iron carbide, or perhaps an iron chromium carbide. These carbides accumulate along the grain boundaries of the metal, and if the metal is then subjected to heavy corrosive attack such as nitric acid, hot salt water, copper sulphate solution and so forth, an electrolytic effect may be developed which will destroy the metal.

It is obvious that in welding the metal is at some point heated to these temperatures and, therefore, there is always an area adjacent to the weld which will have a lower corrosion resistance than the parent metal. This carbide precipitation does not occur instantaneously, but requires a certain amount of time to develop. It is obvious that because a No. 24 gauge sheet will cool more rapidly than a 1/4-inch plate, that precipitation is less likely to occur in light gauge work than in heavier thicknesses. It is also true that experience has indicated that in applications such as soda fountains, restaurant equipment and so forth, corrosion is of such a mild type that carbide precipitation need not be considered. On the other hand, the calcium bisulphide solution used in the sulphite paper industry is so highly corrosive that all welds must be treated to eliminate carbide pre-

*(Continued on page 31)*



# Electric Motor Requirements In Modern Heating [Part V]

By H. WEICHSEL

Consulting Engineer, Wagner Electric Co., St. Louis

It is one of the problems of the designer to obtain sufficient starting torque even at the reduced speed connection. The reason this is necessary will be evident from the fact that the user of these heaters desires to have the fan operate at any one of the three speeds, and if thermostatic control is used in order to start and stop the motor when certain temperature limits have been reached, the motor may find itself in the low speed, medium speed, or high speed connection when the thermostat closes the motor circuit. Consequently the motor must have sufficient torque in the low speed connection to positively start.

The starting torque is among other things a function of the condenser capacity, and the relation between starting torque and condenser capacity is given in Fig. 64. By changing the ratio of the number

of turns in the auxiliary winding to the main winding, a ratio which is usually called "K," this curve can

be modified for instance to a shape given in a curve B.

Not only does the condenser in

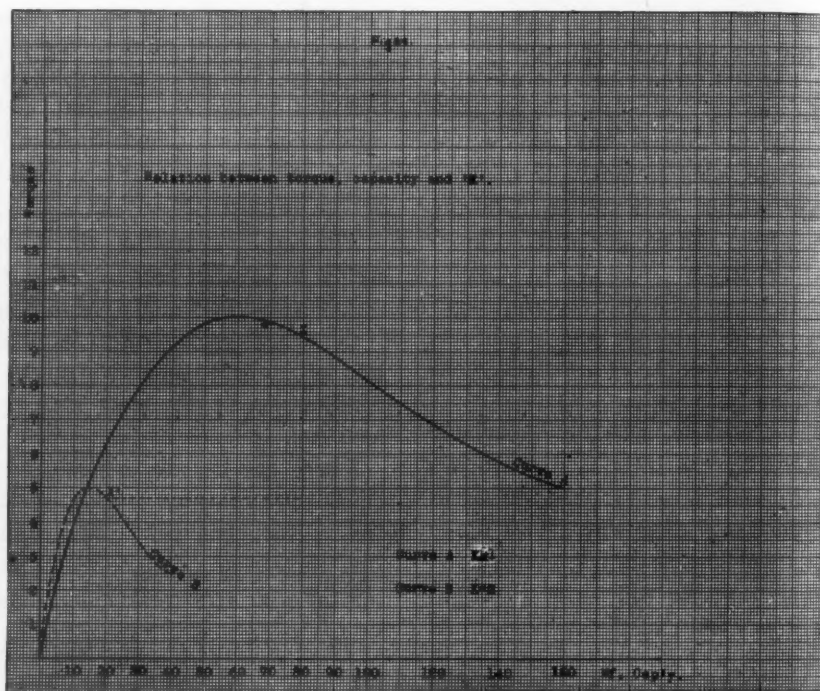


Fig. 64—This chart shows in plotted form the relation between starting torque and condenser capacity

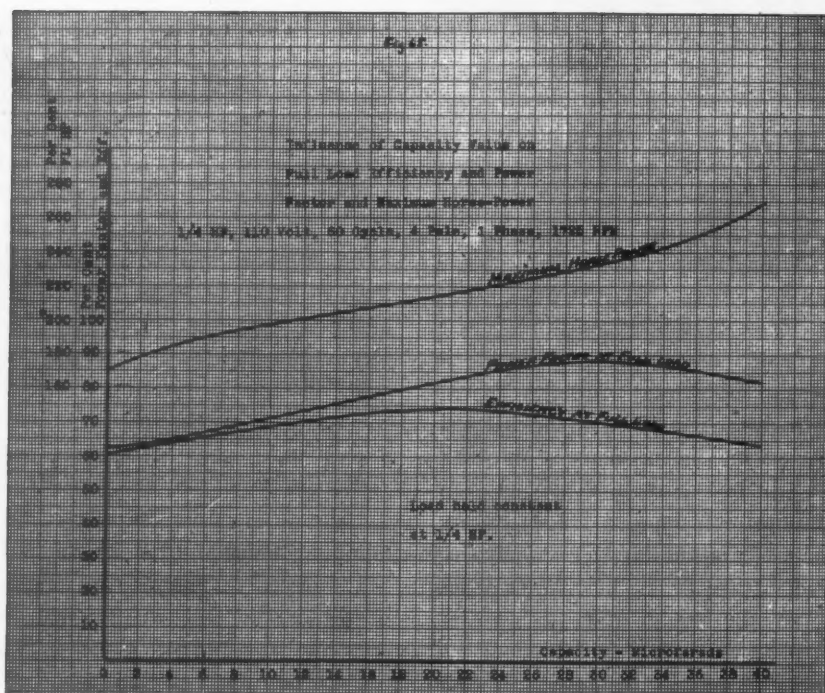
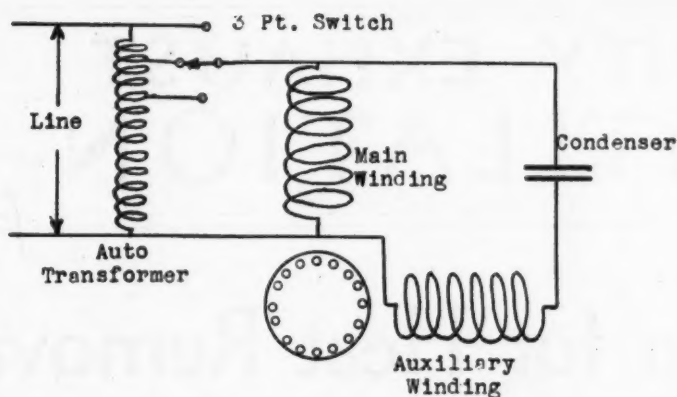


Fig. 65—Left—Shows the influence of the capacity on the efficiency and power factor of the motor. See accompanying text

the auxiliary circuit produce the desired starting torque and the desired speed torque characteristic, but it also changes the running characteristics of the machine. Fig. 65 shows the influence of the capacity on the efficiency and power factor of the motor and also shows that with increased capacity the maximum horse-power of the motor increases. It will be noticed that by using too high a capacity the efficiency and power factor drop.



In order to obtain with the condenser motor the different speeds or speed torque curves as shown previously, it is necessary as already pointed out to change the voltage impressed on the main winding of the machine. The most evident way of doing this consists in placing a transformer in front of the motor such as shown in Fig. 66.

If it is desired to eliminate the transformer, as space requirements

Fig. 66—Above—To change the speeds of the condenser motor a transformer is placed in front of the motor to change the voltage impressed on the main winding

Fig. 67—Right—If an external transformer cannot be used, the transformer effect can be obtained by a special winding in the motor. This is the so-called appendix winding

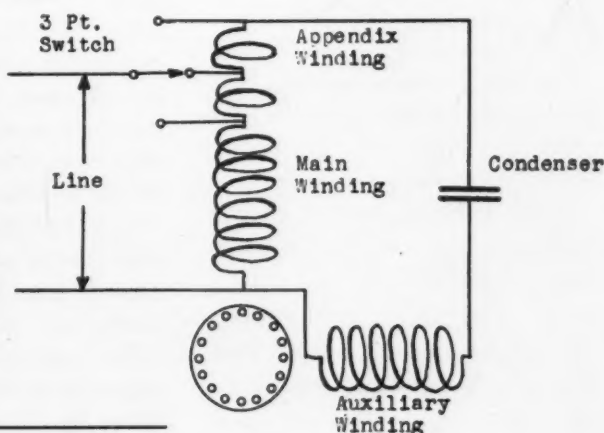


Fig. 67.

when the switch is in the "off" position. It follows from this diagram that the snap switch may be set on low speed when the thermostat closes and consequently the motor in this connection must have sufficient torque to produce positive starting, as pointed out in the beginning.

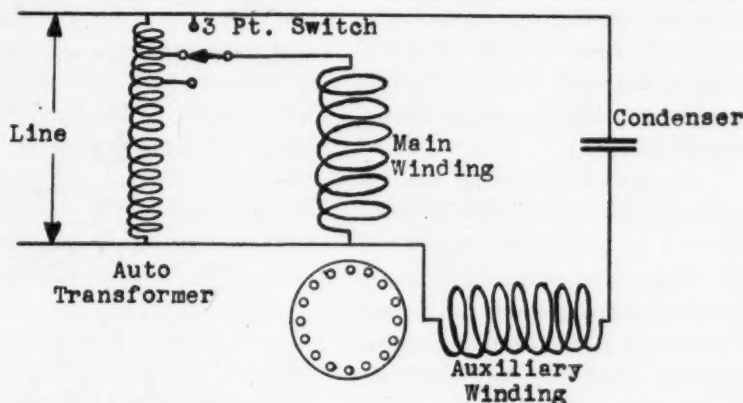
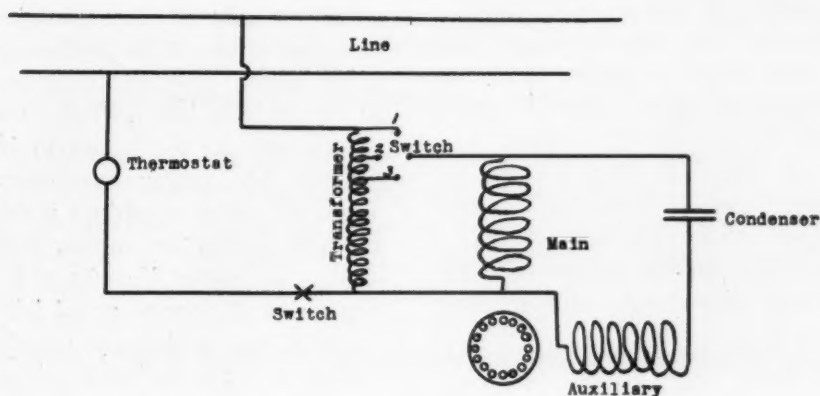


Fig. 68—This is a third possibility in which the external transformer uses a constant voltage injected into the auxiliary circuit whereas in Figs. 66 and 67 this voltage varies

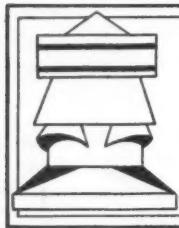
in Fig. 68, from which it will be seen that the voltage injected into the auxiliary circuit remains constant, while in the two previous ar-

Fig. 69—Below—A complete wiring diagram for a motor with an external transformer and thermostatic control

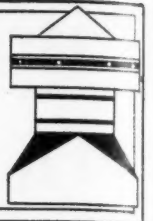


in some instances may be objectionable, it is possible to build the transformer right into the motor as shown in Fig. 67, where the main winding is wound with a so-called appendix winding which contains taps, and depending on what tap the line voltage is connected to, the motor produces different speed torque curves.

A third combination possible to obtain the desired result producing an external transformer is shown



# GRAVITY EXHAUST VENTILATION



## Ventilation for Heat Removal

**A** READER of the ventilation department has written us: Gentlemen:

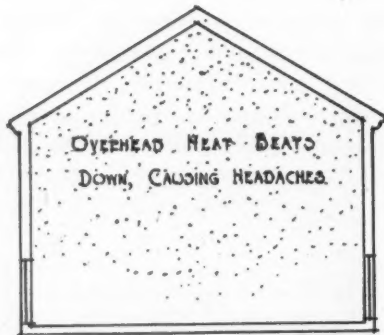
Can you give me a few facts that will help me handle ventilation jobs where the object is to get rid of heat in workrooms and stores?

Which is better, fans or gravity ventilators, and how can I tell how big a ventilator to use?

(Signed) L. R. Holmes.

In response to this request Paul R. Jordan has given us the following reply:

There are a great many places  
SHOWING HEAT POCKET IN  
UNVENTILATED BUILDING



and situations that really need ventilation for heat removal. The conditions and surroundings may show a wide variation, but a few practical principles can be applied to all heat removal problems.

In the first place, hot air, hot gases and hot fumes have a tendency to rise. The first principle is to draw off the objectionable elements immediately without allow-

By PAUL R. JORDAN\*

ing them to mix with the surrounding air, and without mixing the other air with them. To accomplish this, any air-stirring device should be arranged so as to not interfere with the direct and immediate travel of the objectionable element from its source to the exhaust.

The secret of non-interference and non-mixing is get the cool air under the heated air. Also to arrange any oscillating fans or other air-stirring devices so that they will blow on the workers without crossing the uprising column of heated air (or gases).

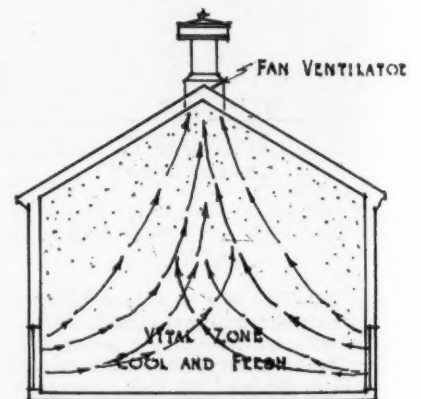
Exhausts should be at the extreme top. Intakes should be at the floor or in as low as possible. If the intakes are not at the floor the incoming current should be directed downward, if that can be accomplished. Ideal heat removal conditions are had when a flow of cool air coming in at the floor line constantly pushes up the heated air and gases, these being removed immediately without mixing with the surrounding air.

Whether fans are better than gravity ventilators depends nine times out of ten on the psychology of the owner. The tenth time, one or the other is better. There are some conditions too severe to be handled by gravity ventilators. There are other conditions which for one reason or another will shorten the motor life. As to the application of these to actual jobs, I would suggest that you put the matter up to the ventilator and fan

ventilator manufacturer, whose experience will enable him to advise you correctly.

As to how large a ventilator to use, the formula for roof space is to multiply the area in square feet by 80, and the result will be the number of cubic feet of air to handle. This is for roof space ventilation only. But the same formula will answer on any building where ventilation needs are not acute, where there is no heat producing equipment inside of the building, and where the sole need

SHOWING GOOD LAYOUT



for heat removal arises from the rays of the sun on the outside of the building.

Where there is heat producing equipment inside the building it is necessary to take into consideration the amount of heat being produced in conjunction with the condition that has to be met with. Your basis, then, will be the cubical contents of the room. The number of changes of air per hour necessary will vary from 8 to 24. Perhaps the only guide to this is experience.

\*The Paul R. Jordan Co., Indianapolis, Indiana.

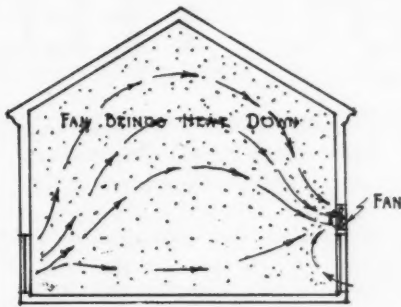


Inasmuch as a good heat removal job is such a good advertisement, and a poor heat removal job such a black eye to the ventilation contractor, I would suggest that it might be advisable to get in touch with the ventilator expert whenever possible.

In figuring the sizes and quantities to take care of any specific condition after getting your cubic feet, use a conservative manufacturer's table.

In figuring heat removal don't forget to multiply your area in square feet by 80. Also, in figuring a ventilation need based on the cubic content of any room, don't forget to multiply your cubic con-

### SHOWING POOR LAYOUT



tents of the room by the number of air changes you desire. This may seem like a silly piece of advice, but I have run across jobs where the cubic contents of the room was used instead of the necessary air

change. In other words, the whole thing was based on one change of air per hour, which is bound to be terribly insufficient.

Heat removal is distinctly a summer business, nevertheless it is a profitable business for the sheet metal contractor. The surface has hardly been scratched along this line, as almost any kind of room or building used for business needs summer ventilation, and not to exceed 1 per cent of them actually have it. Restaurants, stores, factories, theaters, recreation halls, dairies—in fact every type of business needs summer ventilation. You are therefore on the right track when showing an interest in it.

### DUST STREAKS

(Continued from page 25)

ences of all exposed areas would be reduced to a negligible value. A sample wall, similar to that of a dwelling, was built but with its inner space divided into two equal compartments. Into one of the divisions, a one-inch layer of Balsam-wool was installed to form an insulating blanket. The other space was left empty. During the ensuing experiments, the air next to the clapboards on the outside of the wall was kept at a constant temperature of approximately zero degrees Fahrenheit while the soot-laden air within the smoke chamber next to the wall paper was kept at about eighty degrees Fahrenheit.

It was interesting to observe that the section which was insulated, with the Balsam-wool, was practically free from the lath marks, while the other untreated compartment was prominently figured with

them. Lath marks, it was thus clearly demonstrated, indicate "thermal leaks." The heat passes out through those places most heavily covered with dust or, in other words, they are the cold places, indicating a loss of heat from within.

A dwelling in which lath marks make their appearance readily is most likely to be poorly insulated.

### WELDING ALLEGHENY METAL

(Continued from page 27)

precipitation. Between these two extremes each application must be considered from the standpoint of the degree of corrosion and also the probability of carbide precipitation which in turn is governed by the technique of welding and also the thickness of the parts which are welded.

It should be noted that where carbide precipitation has occurred,

that it can be eliminated by heating the metal to a temperature of about 1,950 deg. F., which heating should be followed by a cooling sufficiently rapid to prevent further precipitation. The method of cooling will, of course, depend on the thickness of the section and the details of such operations should be discussed with the manufacturers.

Metals of the 18-8 type will expand when heated about 50 per cent more than steel, and the heat conductivity is only about one-half that of steel. These two factors tend to make the metal warp more than steel and this point must be taken into careful consideration in all welding jobs. Jigs must be used to hold warpage within practical limits.

Welds in Allegheny metal are extremely tough, and any welds made on metal about No. 10 gauge or lighter should stand bending flat on themselves without fracturing.

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**AMERICAN ARTISAN** is the contractor's own paper. The articles are written for and about the contractor and his activities. Such a wealth of material, secured from aggressive contractors or written by contractors highly qualified to discuss their subjects, is available that the matter of selection is difficult. If you have certain features you would like to see discussed, tell us what they are

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# CAN YOU TELL ME?

## Metal Boat Patterns

From American Education Press, Inc., Columbus, Ohio.

Where can we get a pattern for a 20-foot metal motor boat?

**Ans.**—H. F. Thompson Boat and Pattern Works, Decorah, Iowa.

## George C. Keene & Company

From Walter H. Ziegler, Farmland, Indiana.

Where is George C. Keene & Company located?

**Ans.**—2331 Florence Avenue, Cincinnati, Ohio.

## Roofing Slate

From M. C. Van Valkenburg, Dubuque, Iowa.

Where can I get roofing slate.

**Ans.**—David Levow, 308 East 20th Street, New York City; Rising & Nelson Slate Company, 2554 West Harrison Street, Chicago, Illinois; Vendor Slate Company, Inc., 140 South Dearborn Street, Chicago, Illinois.

## Steel Ceiling

From L. R. Hamman, 507-511 East Prairie Ave., Decatur, Illinois.

I am in need of 80 square feet of steel ceiling listed in F. O. Schoedinger catalog as No. 294, Kinnear-Gager catalog as No. 194. This plate has been discontinued and patterns destroyed, but I thought that some of your readers might have some of these plates left over from some job that they might furnish same to me.

## Copper Discs

From Albany Roofing Company, Albany, Georgia.

Where can we buy copper discs 3 inches in diameter made from 14 or 16 gauge cold rolled copper?

**Ans.**—American Brass Company, Kenosha, Wisconsin; Revere Copper & Brass, Inc., 2200 Natchez Avenue, Chicago, Illinois.

## Light Copper Tubing

From Austin Linebaugh, Mishawaka, Indiana.

Where can I buy 1-inch light copper tubing?

**Ans.**—American Brass Company, Kenosha, Wisconsin; Revere Copper & Brass, Inc., 2200 Natchez Avenue, Chicago, Illinois.

## Bismuth in Small Quantities

From C. DeWitt Wagner, Cedar Rapids, Iowa.

Where can I buy bismuth in pound lots?

**Ans.**—Illinois Smelting and Refining Company, Peoria and Kinzie Streets, Chicago, Illinois.

## Retinning

From A. Furman, Beloit, Wisconsin; Tennessee Sheet Metal Works, Inc., Memphis, Tennessee.

Where can we get retinning equipment?

**Ans.**—Retinning Manufacturing Company, 3021 Greenwood Avenue, Chicago, Illinois.

## Lakewood Lawn Mower

From M. E. Kreider, Wenona, Illinois.

Who manufactures the Lakewood lawn mower?

**Ans.**—Coldwell Lawn Mower Company, Newburgh, New York.

## Stokers

From Wade Sheet Metal Works, Yakima, Washington.

Who manufactures coal stokers?

**Ans.**—Brownell Company, Dayton, Ohio; Combustioneer, Inc., Goshen, Indiana; Domestic Stoker Company, 7 Dey Street, New York City; Fire-King Stoker Company, 1160 Roosevelt Road, Indianapolis, Indiana; Germer Stove Company, Erie, Pennsylvania; Iron Fireman Manufacturing Company, 986 Seventeenth Avenue, Portland, Oregon; Motor Stoker Corporation, 250 Park Avenue, New York City; Parry Stoker Company, Cincinnati, Ohio.

## Balsam Wool Insulation

From Otis Burton, Orleans, Indiana.

Where can I buy Balsam Wool Insulation?

**Ans.**—Wood Conversion Company, Cloquet, Minnesota; *Chicago office*, 360 North Michigan Avenue.

## Rival Strap Corporation

From South Shore Sheet Metal Works, Chicago, Illinois.

Where is the Rival Strap Corporation located?

**Ans.**—308 West 20th Street, New York City.

## Wire Mesh for Creamery Work

From Aurora Tin & Furnace Company, Aurora, Nebraska.

Where can we get copper wire mesh tin-coated for creamery work?

**Ans.**—F. P. Smith Wire & Iron Works, 2340-2348 Clybourn Avenue, Chicago, Illinois; the W. S. Tyler Company, 3615 Superior Avenue, N.E., Cleveland, Ohio.

## Wire Scratch Brushes

From Walter H. Ziegler, Farmland, Indiana.

Who manufactures the narrow wire scratch brushes which telescope into the tin handles?

**Ans.**—Milwaukee Brush Manufacturing Company, 777-790 Thirtieth Street, Milwaukee, Wisconsin.

## Spray Heads

From Milton L. Kistler, Alexander City, Alabama.

Where can I buy spray heads that will throw mist for use in making an air washer?

**Ans.**—W. D. Allen Manufacturing Company, 566 West Lake Street, Chicago, Illinois; Binks Manufacturing Company, 3114-16 Carroll Avenue, Chicago, Illinois; Thompson Sprinkler Company, 325 West Huron Street, Chicago, Illinois; *California office*, 2251 East Seventh Street, Los Angeles.

## Color-Bestos

From Sunbeam Heating Company, Chicago, Illinois?

Who makes Color-Bestos?

**Ans.**—Technical Products Company, Sharpsburg Station, Pittsburgh, Pennsylvania.

## Fruit Dryers

From J. A. Lang, Sugarcreek, Ohio.

Where can we get portable galvanized fruit dryers?

**Ans.**—Leather Equipment Company, 211 West Wacker Drive, Chicago, Illinois.

## Retinning Flux

From G. W. Wade, Yakima, Washington.

Where can we get retinning flux, also retinning information?

**Ans.**—Retinning Manufacturing Company, 3021 Greenview Avenue, Chicago, Illinois.

# NEW ITEMS and NEWS ITEMS

## From and about the Manufacturers and Jobbers

### Baker Furnace Co., Toledo, Making New Vacuum Cleaner

The Baker Furnace Company, 2505 Albion Street, Toledo, Ohio, is now manufacturing a portable furnace vacuum cleaner. The cleaner has been used and developed over a period of two years by the company's own force of cleaners.



The motor is of universal type and can be used on any current plugging in on any house circuit of 110 volts.

Equipment furnished with each machine consists of one large bag 15 ft. long by 4 ft. in diameter, one small bag 4 ft. by 15 in. in diameter (to be used if you take the cleaner to the first or second floor, round brushes for cleaning the inside of 8-in., 9-in., 10-in. and 12-in. warm air

pipes (these brushes fit on the end of the 1½-in. hose and draw the dirt out by brushing and suction), two tools with brushes built in for cleaning the outside of warm air and cold air pipes, one paw tool, one floor tool, 20 ft. of 3-in. durable suction hose, 3 6-ft. sections of flexible tubing, 50 ft. of heavy rubber covered electric cord, 2 30-ampere fuses, and a complete set of hose connections. Each

machine is guaranteed for one year against defective material or workmanship.

The price of the cleaner with complete attachments is \$250 and the cleaner is offered on a five day trial. The terms at the end of five days are \$88.00 cash and \$27.00 a month for six months or \$234.00 all cash or return the machine at the company's expense.

### Stanley Works Announces New Southern Representation

L. D. Tuttle, who has been representing the Van Norman Machine Tool Company in the sale of Stanley automotive electric and service tools in the southern states, will now represent the Stanley Electric Tool Company direct in the sale of electric tools to the industrial, electric and automotive distributors, and Stanley direct in the sale of automotive service tools to the automotive distributors.

Associated with Mr. Tuttle in his Atlanta office at 59 Baker Street N. W., is E. G. Jones and E. A. Walker; in his Dallas office at 2101 North Akard Street, Stafford Jones.

### Indianapolis S. M. & W. A. H. Contractors to Picnic July 25

The Indianapolis Sheet Metal & Warm Air Heating Contractors' Association will hold their Annual Picnic at Long-acre Park on Saturday, July 25, beginning at 10:00 o'clock and lasting throughout the day. The sheet metal and furnace contractors and jobbers will close their places of business so that all of their employees may attend.

There will be the usual program of games and contests in the morning, and swimming in the afternoon. Visiting delegations are expected from Louisville, Gary, Lafayette, Terre Haute, Vincennes, Muncie, Bloomington, Richmond and South Bend.

The president of the Indianapolis Association is Guy Lefforge and the chairman of picnic committee, Elmer Mullin.

### Leo H. Beech Returns to Agency Field

Leo H. Beech, for the past twenty years manager and president of the Bridge & Beach Mfg. Co., St. Louis, which company has recently been reorganized on a reduced scale, has returned to Dallas, Texas (address 2906 Maple Avenue), to resume the manufacturers' agency business.

Mr. Beech has a wide acquaintance in the Southwest and is seeking a few good lines to sell the large buyers of Texas, Oklahoma, Louisiana and Arkansas.

### Quick Furnace and Supply Co., Des Moines, Moves

Quick Furnace and Supply Company is now located at 117-123 Southwest Second Street, Des Moines, Iowa. The change in location was made July 7.

The company invites friends to visit their new quarters.

### Piatt Changes Name to MW Oil Burning Utilities

Motor Wheel Corporation, Lansing, Michigan, manufacturers of the Piatt Oil Burning Furnace and Piatt Water Heater announce that all the company's products will now be marketed under a new name—MW Oil Burning Utilities. The name takes its significance from a new monogram with the entwined initials of Motor Wheel.

The company announces that a new line of oil burning utilities of their heater division will shortly be ready for marketing.

### L. L. Burg Opens Shop in Idaho Falls, Idaho

L. L. Burg who operates under the firm name, Star Sheet Metal Works, has opened a new shop at 471 B Street, Idaho Falls, Idaho.

Mr. Burg would like to get catalogues and equipment literature from manufacturers and jobbers.

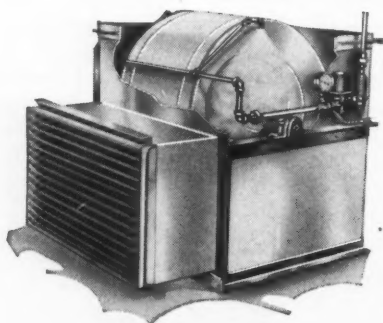
### Peerless Foundry Co., Inc., New Furnace Repair Catalogue

The Peerless Foundry Co., Inc., 1845 Ludlow Avenue, Indianapolis, Ind., now has ready for distribution a new furnace repair catalogue.

The catalogue lists all the furnace and boiler repair parts handled by the company. A copy of the catalogue will be mailed upon request to the Peerless company.



## Now---both Washed and Humidified Air for Homes



## ---at One Unit Price

THE new single-unit Am-Pe-Co Air Washer-Blower is reaping a rich harvest for dealers throughout the country.

Absolutely without competition. Combines both forced air and air conditioner *in one compact unit*. Reduces costs—saves space—insures a better job than ordinary double installations—and *offers a handsome profit to the dealer*. Also operates as a summer cooling plant if desired.

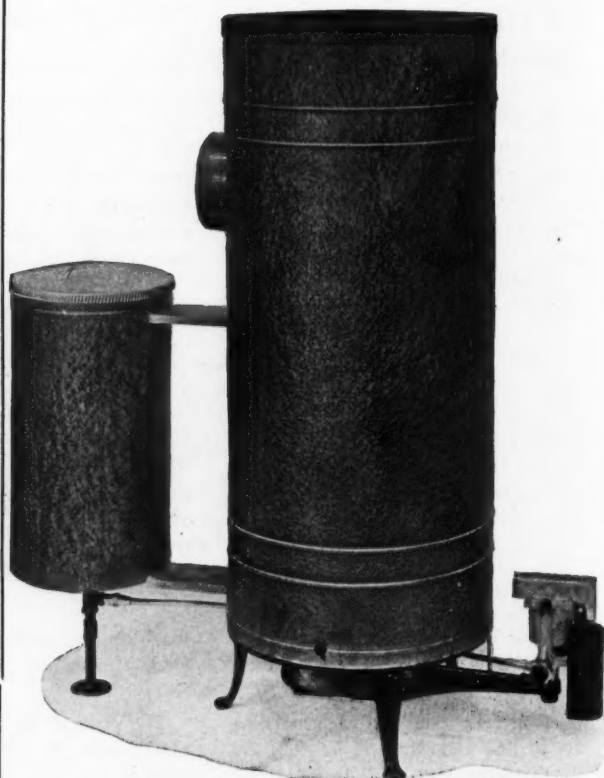
Advanced type construction and finest workmanship. Get the facts. Write at once for new illustrated circular and dealer prices. Be the first in your community to CASH IN on the Am-Pe-Co Air Washer-Blower.

**American Machine Products Co.**

Box B, Marshalltown, Iowa

*Also Am-Pe-Co Blowers for forced air systems only*

## A Quick Money-Maker — for — Progressive Dealers



**NORTHERN  
Junior  
Oil Heater**

### With Patented Oil Pilot

SELL IT NOW for summer cottage, hunting lodge, or brooder house. Sell it *any time*, anywhere, for store, filling station, home garage, or work room. Year-around sales—no installation, no service “grief”—CLEAN PROFIT.

The NORTHERN JUNIOR OIL HEATER burns distillate with thorough combustion. Not dependent on gas or electric service. No moving parts. NO WORK, NO DUST, NO ASHES, NO NOISE. Specially designed for controlled, uniform heat. Equipped with Automatic Draft Regulator . . . with or without a 6-gallon tank attached. No “dull season” with the NORTHERN. Ask for literature, prices, and discounts.

**NORTHERN OIL BURNERS, Inc.**

*Also Mfrs. Northern Automatic (Household) Oil Burner*

2441 Hennepin Ave.

Minneapolis, Minn.

Say you saw it in AMERICAN ARTISAN—Thank you!

A COOL HOME  
IN THE SUMMER  
A WARM HOME  
IN THE WINTER

Every furnace man knows the advantages of a double purpose unit.

A single unit which delivers positive "Air Conditioning" at all times. There is just such a unit. Investigate the May-Fiebeger line.

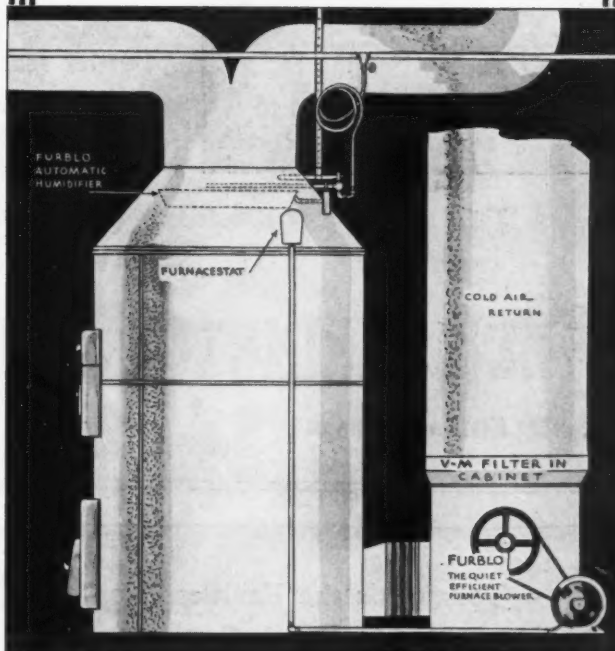
# AKRON AIR BLAST FURNACE

Write today and let us tell you all about the Akron Air Blast and the other units that comprise the May-Fiebeger line. All about a single unit which gives "Air Conditioning." Do it now.

The May-Fiebeger Co.  
NEWARK  
OHIO

# Furblo

Now  
Offers Complete  
**AUTOMATIC**  
Air Conditioning  
Equipment



**L**AKESIDE COMPANY, after exhaustive tests and the approval of hundreds of dealers, now presents its complete automatic air conditioning equipment. It's **AUTOMATIC**—that's the important thing your customer will like to hear. The blower operates automatically. The air is cleaned automatically. It is given a perfect moisture content automatically. Here is equipment to raise your profit margin on every installation.

- |                          |  |
|--------------------------|--|
| <b>FURBLO</b>            | The quiet efficient furnace blower with guaranteed ratings. Performs as we say it will!  |
| <b>FURNACESTAT</b>       | The watchman that turns Furblo on and off automatically.   |
| <b>FURBLO HUMIDIFIER</b> | Absolutely automatic and clog-proof. Nothing to interrupt operation throughout a season.   |
| <b>V-M FILTER</b>        | Gets all the dirt. Is renewed in an instant. No washing or messy cleaning needed. Filter cabinet furnished for Type B or Type C Furblo when desired. |

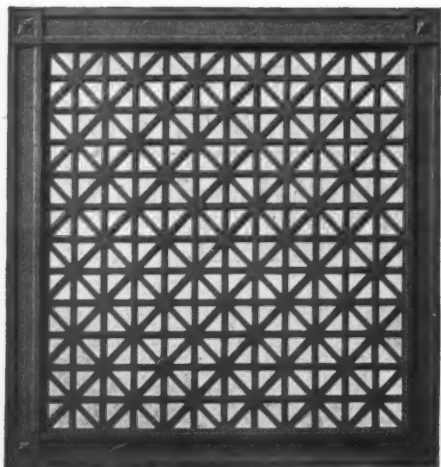
Write for Complete Descriptive Material

**LAKESIDE COMPANY**  
Makers of Lakeside Ventilating Systems  
HERMANSVILLE MICHIGAN

Say you saw it in AMERICAN ARTISAN—Thank you!

# Perforated Metals...

## *for every purpose*



No matter what the uses we can perforate metal to meet the purpose. In Public Buildings, Churches, Schools, Factories and homes our grilles are dominant. There are hundreds of designs to select from.

### "GRILFRAME"

Enhances the beauty of any grille by the addition of a border frame of steel. You can do it with "Grilframe." Agents everywhere.

The H. & K. Line consists of perforated sheets and a full selection of Guard accessories.

WRITE FOR CATALOG AND QUOTATIONS. Perforated metal for every purpose

- SAFETY GUARDS -

## THE HARRINGTON & KING PERFORATING CO.

5649 Fillmore Street

New York Office, 114 Liberty Street

Chicago, Ill., U. S. A.

Today, it's the Faultless Furnace Dealer Who's Getting the Lion's Share of the Installations Because He's Handling "the Line that Leads."



"True to the Name"  
**FAULTLESS**  
WARM AIR FURNACES

**The Graff Furnace Co.**

Scranton, Pennsylvania

New York City Sales Office: 116-118 Wooster Street

### Breuer's Ball Bearing Tornado Furnace Cleaner

100  
Per Cent  
of All  
Furnaces  
Need  
Cleaning

60  
Per Cent  
of All  
Furnaces  
Need  
Repairing

Only  
**\$149.50**  
Complete



Facts show that 60 per cent of all furnaces need repairing—but how much of this percentage do you get? The only sure way to get more repair business is by offering TORNADO Cleaning Service at a nominal charge.

You not only make a profit on the cleaning job but you are able to get into the basement and suggest repairs—and even sell new furnaces.

Protect and build your business with TORNADO Cleaning Service. It keeps customers satisfied and brings in new business. The TORNADO Furnace Cleaner is the lightest unit built—weighs only 30 pounds, a one man outfit—lowest in cost, only \$149.50 complete—powerful, oversized 2 1/2 H.P. G.E. Universal Motor mounted on Norma Precision Ball Bearings—10 gallon steel tank dust receptacle mounted on large castors, neatly polished aluminum lid and power unit—easily cleaned—just the cleaner to build profits at low cost. Write for complete information on our three days' free trial offer.

**BREUER ELECTRIC MFG. CO.**

865 Blackhawk St.

Chicago, Ill.

Canadian Representative, **HERBERT F. IRWIN CO., INC.,**  
73 Adelaide St. W., Toronto, 2, Ontario  
Dept. C

Mention AMERICAN ARTISAN in your reply—Thank you!

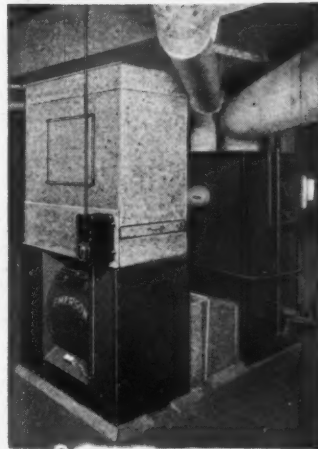


**1** size unit  
takes care of  
**90%**  
of your  
installations  
•  
Adjustable  
from 955  
to  
**2540** cubic feet  
per minute

## Years of Experience behind this New **Furnace Blower**

**N**OW you can sell a furnace blower made by the makers of Emerson Fans and Motors—the best possible guarantee that the motor and the fan—the two most important parts in the blower—will be the best that money can buy. 40 years of experience is behind every Emerson product.

**Features.** Extremely simple. All self-contained. No special wiring—operates from lighting circuit. Extreme quietness. Motor spoke mounted on rubber. Direct drive, no belts or pulleys. No starting device. No radio interference. 8-speed control from which 3 most desirable speeds can be selected.



Typical Installation

Distributors, write  
for territory.

Dealers, write  
for bulletin.

Use Coupon →

**EMERSON**  
FURNACE BLOWER

The Emerson Electric Mfg. Co.  
2018 Washington Ave., St. Louis, Mo.  
☐ Send Furnace Blower circular,  
and jobber's name.  
☐ I am interested in distributor's  
franchise.  
Name.....  
Address.....

## JIM'S SMILING AGAIN—

**That \$2,500 Air Conditioning Plant Works  
100% Now .....**

**Y**OU know Jim. He installed that \$2500 air conditioning plant out at old man Smith's place about a month ago. After it was in it didn't work just right and Jim began to worry. His smile turned to a frown; because you can't sit up till 3 or 4 o'clock figuring and continue to grin.

But Jim's smiling now, for he saw the ad telling about my Mail Order Engineering Service in the June 22 American Artisan, and in desperation bundled up the plans and mailed them to me. In 2 days they came back all checked to show Jim just what was wrong. Jim's mistake cost him about \$100 and lots of worry but the \$2.00 invested in my service made everything OK for Jim.

You too can profit by Jim's experience. I offer an Engineering Service By Mail that costs you little, but saves you many dollars in labor, material and in lost profits.

Drop me a line and let me tell you the whole story and send you an outline of my many services and my new Mail Order Price List.

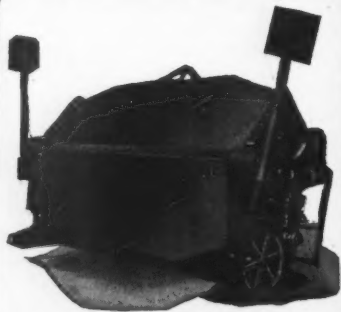
**SPECIAL—PLANS CHECKED FOR \$2.00**

**PLATTE OVERTON** Consulting Engineer **2100 City Hall Square Bldg., Chicago**

Mention AMERICAN ARTISAN in your reply—Thank you!

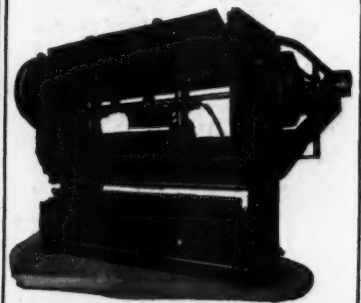
## CHICAGO STEEL BENDING BRAKES AND FORMING PRESSES

The perfected result of over 30 years experience in the manufacture of sheet metal bending machines. Over 25,000 machines in use.



POWER BRAKE

Hand Brakes  
Cornice Brakes  
Power Brakes  
Box and Pan Brakes  
Forming Presses  
Special Brakes and Presses



FORMING PRESS

The most complete and up-to-date line of sheet and plate bending and forming machines in the world. Lengths, 3 to 16 feet, with capacity to bend from the lightest metals up to  $\frac{3}{4}$  in. plate, cold.

### DREIS & KRUMP MANUFACTURING CO.

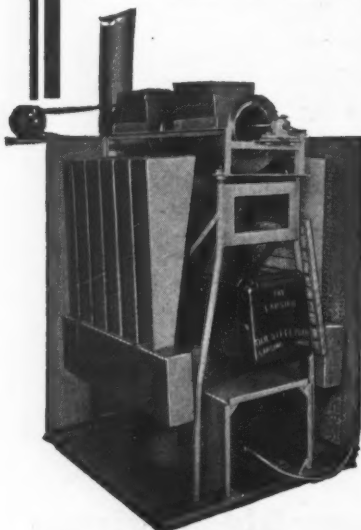
7404 Loomis Street • Chicago

## Sell Perfect Weather to Your Customers

The average home is drier than the Sahara desert.

Lack of humidity and impure air causes most colds and throat and nose ailments.

The Lansing Dailaire system is more than just a furnace—You get perfect air conditions by having proper humidity—Washed air—Forced air and comfortable air temperature at a saving in fuel costs over ordinary furnaces.



Showing Inside View of System

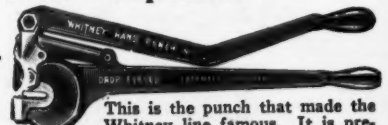
It will pay you to investigate this agency now

Dail Steel Products Company  
1050 Main Street  
Lansing, Mich.

## REGARDLESS OF PRICE

*"It's the tool that does the work that's inexpensive"*

No. 2  
A Leader  
for over  
20 years



This is the punch that made the Whitney line famous. It is preferred by thousands of men for accurate and quick punching. Depth of throat,  $1\frac{11}{16}$  inches. Capacity,  $\frac{5}{16}$  inches through  $\frac{3}{4}$  inch iron or equivalent. Extra punches and dies sizes,  $\frac{3}{32}$  to  $\frac{1}{4}$  inch by  $\frac{1}{64}$  inch.



Channel  
Iron  
Punch

A companion to No. 2 Punch. Every part of this punch and the No. 2 is interchangeable. Length, 23 inches. Weight,  $16\frac{1}{2}$  lbs. Punches to center of 4-inch Channel Iron. Capacity,  $\frac{3}{4}$ -inch hole through  $\frac{3}{4}$ -inch Iron. Same sizes of extra punches and dies as used in No. 2 punch.

W. A. WHITNEY MFG. CO.

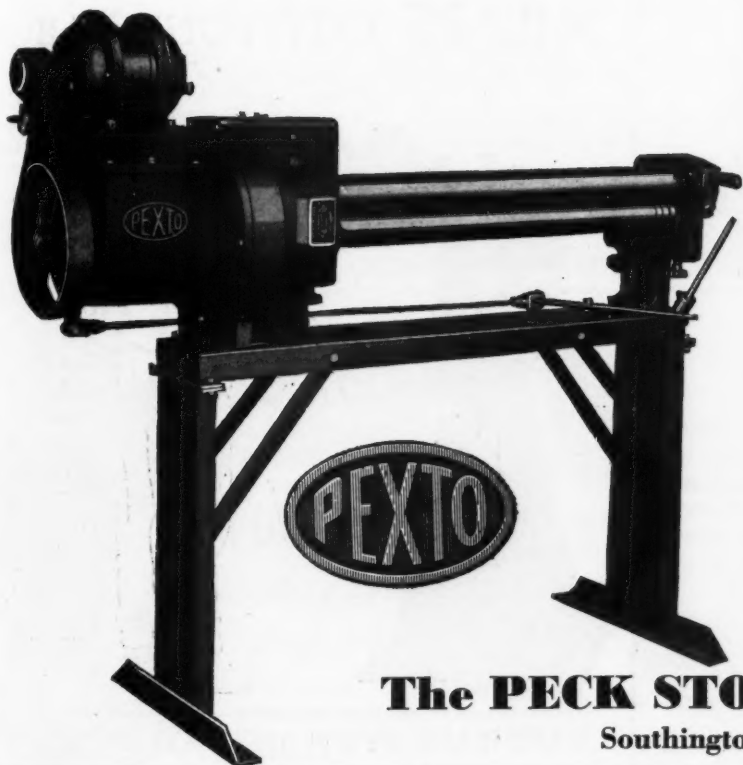
636 RACE STREET

Rockford  
Ill.

The Choice of OVER 5000 Satisfied Users

Say you saw it in AMERICAN ARTISAN—Thank you!

## FORMING ROLLS *that are different*



New Super Performance in heavy Slip Roll Forming Machines. A Power Plant that requires less attention than your automobile.

Three inch Rolls are arranged with Double Friction Clutch and Belted Motor Drive attachment. **ALL THREE ROLLS ARE DRIVEN.**

This application of Double Friction Clutch places machine under full control of the operator.

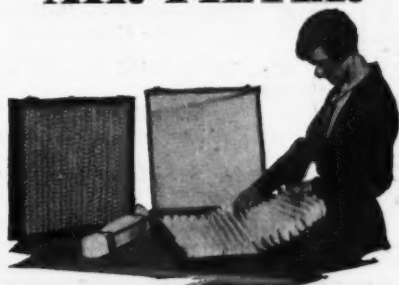
The clutch is controlled thru lever that locks automatically in three positions—forward, neutral and reverse.

New Bulletin "I" will give you all the interesting details. Write for your copy.

**The PECK STOW & WILCOX CO.**

Southington, Conn., U. S. A.

### AIR FILTER



Now Exclusively Distributed to the  
Warm Air Heating Trade  
by **LAKE SIDE COMPANY**  
HERMANSVILLE, MICH.

Because of the close contact of the Lakeside Company with the warm air heating trade and the splendid reputation they have built up for their Furblo, we are glad to announce that they now will be the exclusive distributors for the V-M Air Filter.

They have an interesting folder concerning this filter. Every warm air furnace dealer should write them for a copy.

A dry filter with replaceable filter medium that gets all the dirt.

**CLEAN!**  
No scrubbing or washing. It is renewed in an instant!

**INDEPENDENT AIR FILTER CO.**  
29 SOUTH CLINTON STREET  
CHICAGO

### "Design One For Your Own Use"

—we told the heating engineers. The result was the

## X-L-ALL RUGGED STEEL

### WARM AIR FURNACE

—briefly



it has an extra large casing, lined with corrugated black iron; a big, straight firepot; extra large heat trap, oversize combustion chamber; convenient humidifier; tight fitting doors; double-sealed joints; extra large feed door; roomy ash pit of one-piece welded steel; extra heavy improved grates, 2" firebrick lining that will withstand 3,000

deg., is double welded throughout, with no rivets; low in height; adaptable to gas and oil burners.

**FREE!**

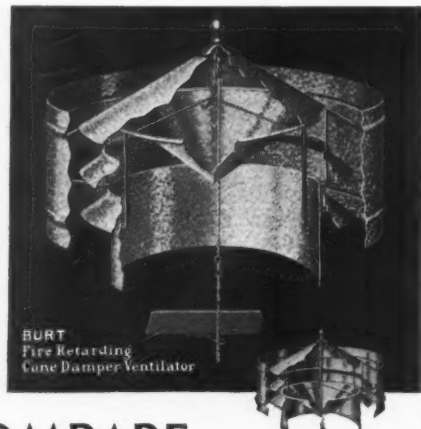
Mail this coupon today. Do not delay. Tomorrow you may forget and the loss will be yours.

Deshler Foundry & Machine Works  
140-142 S. East Ave., Deshler, Ohio  
Please send me without obligation  
.....The X-L-ALL Furnace Book.  
.....The X-L-ALL Dealer Propo-  
sition.

Name.....  
Street.....  
City.....  
A.A.....

Mention *AMERICAN ARTISAN* in your reply—Thank you!





## COMPARE these FEATURES

... extra wide wind band to give a high capacity ... inverted cone damper to correctly guide the exhausted air outward ... fuse link to automatically close damper at dangerous temperatures. These are only a few of the many desirable features found in the Burt Cone Damper Ventilator.

**The BURT MFG. Co.**

Ventilators-Oil Filters-Exhaust Heads  
930 S. High St. Akron, Ohio, U. S. A.

MARSHALLTOWN



SHEARS

## LET MARSHALLTOWN SHEARS CUT YOUR LABOR COSTS



*The Shear  
Keeps Sharp  
Even After  
Months of  
Hard Use*

Put the right kind of machine on the right job.

Save time and labor costs. Make it a MARSHALLTOWN.

*Let the  
Catalog  
Tell the  
Story—  
Write  
for It  
Now*

There is a MARSHALLTOWN for every use. Hand—Motor—and Belt Power.

MARSHALLTOWN MFG. CO. MARSHALLTOWN IOWA

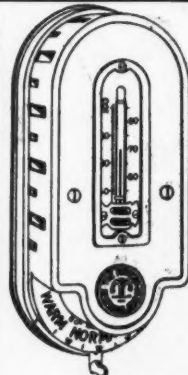


## Friendly Service

It is a significant fact that those travelers who come to The Bismarck are always anxious to come again. Bright, cheery rooms with wonderful beds ... the best of food, delightfully cooked ... every luxury and convenience of the modern hotel ... and friendly, painstaking service that makes you "Feel right at home." Easy of access to all business and amusement centers. Write for booklet with downtown map.

Rooms, \$2.50 up—With Bath, \$3.50 up

NEW  
**BISMARCK**  
HOTEL CHICAGO  
RANDOLPH AT LA SALLE



## FLASH HEAT REGULATOR

Eliminates Chains and Pulleys

Thermostatic—All-Electric  
Fully Guaranteed

Can be installed on any warm air furnace.

List Price \$24.75

Dealer's discount on request

Order Sample at Quantity Price

THE MODERN HEAT REGULATOR CO.  
Manufacturers of the Modern and Sentinel Heat Regulators  
Cleveland, Ohio

## RYERSON

IMMEDIATE SHIPMENT FROM STOCK

More than twenty kinds of prime quality sheets are carried in stock. There is a special sheet for every purpose. Also Bars, Angles, Rivets, Bolts, Tools and Metal-Working Machinery.

Write for Journal and Stock List

JOSEPH T. RYERSON & SON INC.

Chicago  
Detroit

Milwaukee  
St. Louis

Jersey City  
Cincinnati

Buffalo  
Cleveland

Philadelphia  
Boston

# SHEETS

## PUTS MANY EXTRA \$\$ IN YOUR POCKET! BAKER FURNACE CLEANER

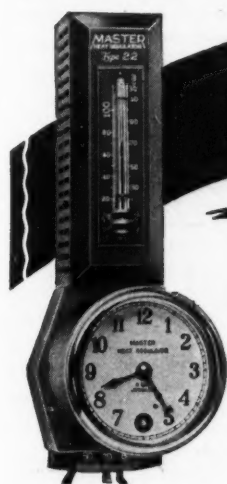
*"The Cleaner with the Extra Big Bag"*

Here's the cleaner you have been waiting for—portable, easy to handle, effective in operation, and at an unusually low price. Let us send you a BAKER on a five day trial basis.

If after testing it for this period, it is not what we claim it to be, return it at our expense. A real furnace cleaner will put many extra dollars in your pocket. Let us tell you about our free offer and the BAKER Cleaner at \$234.

Write for Information

BAKER FURNACE COMPANY, 2507 ALBION STREET, TOLEDO, OHIO



### MASTER HEAT REGULATOR

Type 22

**FULL ELECTRIC**

*Makes every furnace  
easier to operate*

FILL today's demand for greater comfort—uniform temperature—less over-heating—more convenient operation!

These are the valuable advantages any good furnace can offer with the MASTER Heat Regulator. It is easily sold by including the low price in your estimate for a complete, quality installation.

Type 22 fills the steadily growing need for a proved, dependable regulation at a popular price. 8-day jeweled clock control model, \$80. Plain, \$55. Both models are Full Electric—no weights—nothing to forget.

Make your business more profitable. Write us today for full details and discounts.

**\$80** Full Electric, 8-Day Jeweled Clock

**\$55** Full Electric without clock

Manufacturers of  
the MASTER  
Gradual Operation  
Heat Regulator  
Type 44.

**WHITE MANUFACTURING CO.**

2362 University Avenue

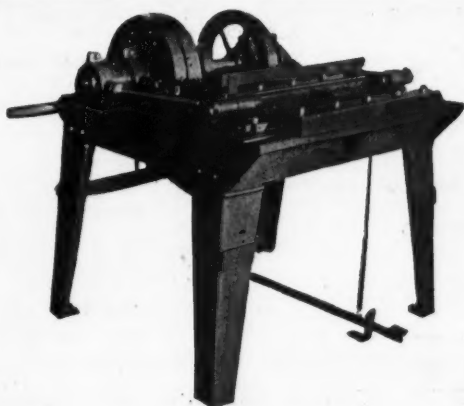
St. Paul, Minn.

## "WHICH will you do?"

*Which  
will YOU  
do - -*

is a new selling help designed to boost the business of contractors using Anaconda Copper. Copies of this folder and others are supplied free of charge—each specially imprinted with the individual contractor's name and address. Write today for a supply. The American Brass Co., Waterbury, Conn.

## ANACONDA COPPER



### Yoder L-300 Stove Pipe Seaming Machine

THIS machine is built with a combination set of 3 pairs of dies, and completely forms the edges of Stove Pipe Sheets, ready for seaming. The bed is of ample proportions, cast in one piece, including all bearings. The shafts are large and all parts sufficiently heavy to permit of rapid operation and produce accurate work.

The dies are accessible, permitting of quick and easy adjustment and are of sufficient length to seam 31" sheets, of No. 22 gauge or lighter. Curling rolls can be attached to frame of the machine, permitting seaming and curling pipe with one handling. Net weight—2700 pounds.

Harry G. Masten Company, 4119 N. Lawler Ave., Chicago Sales Representative

**THE YODER COMPANY**  
W. 55 ST. and WALWORTH AVE.  
CLEVELAND, OHIO  
PLATE AND SHEET METAL MACHINERY SPECIALISTS

Mention AMERICAN ARTISAN in your reply—Thank you!

# ~ MARKET QUOTATIONS ~

AMERICAN ARTISAN is the only publication quoting Prices on Metals, Sheet Metal Equipment and Supplies, Warm Air Heating Supplies and Accessories, corrected bi-weekly. These quotations are not guaranteed but are obtained from reliable sources and reflect nation-wide market conditions at the time of going to press.

NOTE—These prices are Chicago Warehouse Prices to which must be added territory differentials

## METALS

### PIG IRON

Chicago Fdy., No. 2	\$17.50
Southern Fdy., No. 2	17.01
Lake Superior Charcoal	27.04
Malleable	17.50

### FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC 20x28 112 sheets	\$23.80
IX 20x28	27.45
IXX 20x28 56 sheets	14.95
IXXX 20x28	16.10
IXXXX 20x28	17.35

### TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$22.50
IX 20x28, 40 lb. 112 sheets	25.00
IC 20x28, 25-lb. 112 sheets	19.60
IX 20x28, 25-lb. 112 sheets	22.10
IC 20x28, 20-lb. 112 sheets	18.25
IX 20x28, 20-lb. 112 sheets	20.75

### "ARMCO" INGOT IRON PLATES

No. 8 ga.—110 lbs.	\$4.15
3/16 in.—100 lbs.	4.05
1/2 in.—100 lbs.	3.85

### COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12.00
Cokes, 90 lbs., base, 20x28	12.20
Cokes, 100 lbs., base, 20x28	13.75
Cokes, 107 lbs., base, IC,	
20x28	12.75
Cokes, 135 lbs., base, IX,	
20x28	14.75
Cokes, 155 lbs., base, 2X,	
56 sheets	8.50
Cokes, 175 lbs., base, 3X,	
56 sheets	9.35
Cokes, 195 lbs., base, 4X,	
56 sheets	10.25

### HOT ROLLED ANNEALED SHEETS

Base 10 ga.	per 100 lb. \$3.25
"Armco" 10 ga.	per 100 lbs. 4.15

### HOT ROLLED ANNEALED SHEETS 16 GA. AND HEAVIER

No. 18	per 100 lbs. \$3.25
No. 20	per 100 lbs. 3.35
No. 22	per 100 lbs. 3.45
No. 24	per 100 lbs. 3.55
No. 26	per 100 lbs. 3.65
No. 27	per 100 lbs. 3.70
No. 28	per 100 lbs. 3.80

### GALVANIZED

No. 16	per 100 lbs. \$3.70
No. 18	per 100 lbs. 3.80
No. 20	per 100 lbs. 3.90
No. 22	per 100 lbs. 4.00

(Standard differentials on extras to apply)	
No. 24	per 100 lbs. \$4.10
No. 26	per 100 lbs. 4.35
No. 27	per 100 lbs. 4.45
No. 28	per 100 lbs. 4.60
"Armco" 24	per 100 lbs. 5.75

### BAR SOLDER

Warranted 50-50	per 100 lbs. \$19.25
45-55	per 100 lbs. 17.00
48-52	per 100 lbs. 17.75
Plumbers'	per 100 lbs. 15.50

### ZINC

In Slabs	\$5.00
----------	--------

### SHEET ZINC

Cask Lots (600 lbs.)	\$12.00
Sheet Lots (100 lbs.)	13.00

### BRASS

Sheets, Chicago base	16 1/2 c
Tubing, seamless, Chicago base	20 1/2 c
Wire, Chicago base	16 c
Rods, Chicago base	13 1/2 c

## COPPER

Sheets, Chicago base	17 1/2 c
Tubing, seamless, Chicago base	20 1/2 c
Wire, Plain rd., 8 B. & S. Ga. and heavier	12 1/2 c

## LEAD

American Pig	\$6.00
Bar	7.50

## TIN

Bar Tin	per 100 lbs. \$33.00
Pig Tin	per 100 lbs. 32.00

## SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES

### ASBESTOS

Paper up to 1/16	.6c per lb.
Roll board	6 1/2 c per lb.
Mill board, 3/32 to 1/4	6 1/2 c per lb.
Corrugated paper (250 sq. ft. per roll)	\$4.25 per roll
Pipe joint tape, per 500 lineal feet	\$1.50

### ASBESTOS SEGMENTS

8 in.	per 25 sets \$1.50
9 in.	per 25 sets 1.75
10 in.	per 25 sets 2.00
12 in.	per 25 sets 2.50

### CEMENT, FURNACE

5-lb. cans, net	\$0.40
10-lb. cans, net	0.80
25-lb. cans, net	2.00
Per 100 lbs.	7.50

## CLIPS

Damper	
No-Rivet Steel, with tail pieces, per gross	\$8.25
Rivet Steel, with tail pieces, per gross	7.50
Tail pieces, per gross	2.00

### COPPER FOOTING

Copper Footing	.43 %
----------------	-------

### CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B	Net

### CUT-OFFS

Gal. plain, round or cor. rd.	
26 gauge	.30 %
28 gauge	.35 %

### DAMPERS

Yankee Warm Air	
7 inch, doz.	\$1.60
8 inch, doz.	2.20
9 inch, doz.	2.60
10 inch, doz.	2.80
12 inch, doz.	3.50
14 inch, doz.	5.00

### EAVES TROUGH

Galv. Crimpedge, crated	75-15 %
Zinc	.60 %

### ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp.	
28 gauge	.60-10 %
26 gauge	.50 %
24 gauge	.15 %

### Galvanized Terne Steel

Plain Rd. and Rd. Corr.	
28 gauge	.60-10 %
26 gauge	.50 %
24 gauge	.15 %

## Square Corrugated

28 gauge	.55 %
26 gauge	.40 %

## Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5 %
Nested solid	70 & 5 %

## Sq. Corr., A. & B. & Octagon

28 gauge	.55 %
26 gauge	.40 %

## Portico

1, 1 1/4, 1 1/2 inch	.45 %
----------------------	-------

## Copper

16 oz., all designs	.50 %
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## Zinc

All styles	.60 %
------------	-------

## ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	Doz.
No. 28 Gauge	
5 inch	\$1.15
6 inch	1.25
7 inch	1.75

## Adjustable—Uniform Blue

No. 28 Gauge, Uniform Blue	
5 inch	\$1.60
6 inch	1.75
7 inch	2.10

## WOOD FACES—60 % off list.

## FIRE POTS

No. 02 Gasoline Torch, 1 qt.	\$ 5.13
No. 0250, Kerosene or Gasoline Torch, 1 qt.	6.50
No. 10 Tinner's Furnace Square tank, 1 gal.	11.20
No. 15 Tinner's Furnace Round tank, 1 gal.	10.70
No. 21 Gas Soldering Furnace	3.60
No. 110 Automatic Gas Soldering Furnace	10.50

## GLASS

Single and Double Strength, A, all brackets	.85 %
Single and Double Strength, B, all brackets	.87 %

## HANGERS

Conductor Pipes	
Milcor Perfection Wire	.25 %
Milcor Triplex Wire	.10 %

## Eaves Trough

Steel (galv. after forming), from list	.45 %
Selflock E. T. Wire, List	.10 %

## HOOKS

Conductor	
"Direct Drive" Wrought Iron, for wood or brick	.15 %

## MITRES

Galvanized Steel Mitres	
28 gauge	.70-15 %
26 gauge	.70-5 %

## PASTE

### Asbestos Dry Paste

200-lb. barrel	\$15.00
100-lb. barrel	7.75
50-lb. pail	4.50
25-lb. pail	2.50
10-lb. bag	1.20
5-lb. bag	.60

## PIPE

Galvanized	
Crated and nested (all gauges)	75-12 1/2 %
Crated and not nested (all gauges)	75-7 1/2 %

### Furnace Pipe

Double Wall Pipe and Fittings	.60 %
Single Wall Pipe, Round Galvanized Pipe	.60 %
Galvanized and Tin Fittings	.60 %

## Lead

Per 100 lbs.	\$12.50
--------------	---------

### Stove Pipe

"Milcor" "Titelock" Uniform Blue	
28 gauge, 5 inch U. C. nested	\$10.00
28 gauge, 6 inch U. C. nested	11.00
28 gauge, 7 inch U. C. nested	13.00
30 gauge, 5 inch U. C. nested	9.25
30 gauge, 6 inch U. C. nested	10.00
30 gauge, 7 inch U. C. nested	12.00

### T-Joint Made Up

6-inch, 28 gauge	per doz. \$3.40
------------------	-----------------

## REGISTERS AND FACES

Floor Registers	
Steel and Semi-Steel	.40 & 10 %
All Cast Iron	.20 %

### Baseboard

2-Piece	.40 & 10 %
1-Piece	.40-10 & 20 %

### Adjustable Ventilators

Adjustable Ventilators	.40 & 10 %
------------------------	------------

## COLD AIR FACES

Steel and Cast, less than 14" width	.40 & 10 %
Steel, 14" and wider	.65 & 10 %
Cast, 14" and wider	.60 & 10 %
Special Cold Air Faces, Steel or Cast	.40 & 10 %

## RIDGE ROLL

Galv. Plain Ridge Roll, b'ld	.75-15-5 %
Galv. Plain Ridge Roll, crated	.75-15 %

## SCREWS

Sheet Metal	
7, 1/2 x 1/4, per gross	\$0.52
No. 10, 1/2 x 1/8, per gross	0.68
No. 14, 1/2 x 1/4, per gross	0.83

## SHEARS, TINNERS' AND MACHINISTS'

Viking	\$22.00
--------	---------

### Lennox Throatless

No. 18	.35 %
Shear blades	.10 %
(F.o.b. Marshalltown, Iowa)	

## SHOES

Galv. 28 Gauge, Plain or Corrugated, round flat crimp	.60-10 %
26 gauge, round flat crimp	.50 %
24 gauge, round flat crimp	.15 %

## SNIPS

Tinners'	Net
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## VENTILATORS

Standard	.30 to 40 %
Milcor	Net



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<b>Beware of Imitations</b>  <b>"FITRITE"</b> Mop Heads & Staples Malleable Iron Write Dept. "A" for full details and prices		 <b>"FITRITE" Bronze ROOF STRAINERS</b> Type "X" 3 Types. For Roofs having inside cast iron leader. Type "X" (illustrated) also made in Mal. Iron	 <b>"FITRITE" Bronze BEEHIVE STRAINERS</b> For Round Leaders 3"-4"-5"-6"-7"-8" Diameter
<b>DAVID LEVOW</b> 308 WEST 20th ST. NEW YORK			



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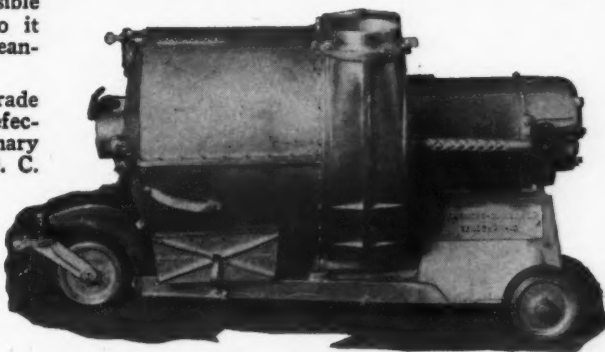
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# BUYERS' DIRECTORY

## Air Cleaners

American Fdy. & Furnace Co.,  
Bloomington, Ill.  
Independent Air Filter Co.,  
Chicago, Ill.  
Kleenaire Filter Co.,  
Stevens Point, Wis.  
Meyer & Bro., F.,  
Peoria, Ill.  
Watt Mfg. Co.,  
Sterling, Ill.

## Air Washers

American Machine Products Co.,  
Marshalltown, Iowa  
Brundage Co.,  
Kalamazoo, Mich.  
A. Gehri & Co.,  
Tacoma, Wash.  
Watt Mfg. Co.,  
Sterling, Ill.

## Asbestos—Liquid

Technical Products Co., Pittsburgh, Pa.

## Asbestos Covering

Standard Asbestos Co. of Chicago,  
Chicago, Ill.  
Wilson, Grant, Inc.,  
Chicago, Ill.

## Asbestos Paper

Standard Asbestos Co. of Chicago,  
Chicago, Ill.  
Wilson, Grant, Inc.,  
Chicago, Ill.

## Ash Sifter

Diener Mfg. Co., G. W., Chicago, Ill.

## Blast Gates

Berger Bros. Co., Philadelphia, Pa.

## Blowers

American Fdy. & Furnace Co.,  
Bloomington, Ill.  
American Machine Products Co.,  
Marshalltown, Iowa  
Brundage Co.,  
Kalamazoo, Mich.  
Emerson Elec. Mfg. Co.,  
St. Louis, Mo.  
A. Gehri & Co.,  
Tacoma, Wash.  
Henry Furnace & Fdy. Co.,  
Cleveland, Ohio  
Lakeside Co.,  
Hermansville, Mich.  
Watt Mfg. Co.,  
Sterling, Ill.

## Bolts—Stove

Ryerson & Son, Inc., Jos. T.,  
Chgo., N. Y., St. L., Det., Cleve.

## Brakes—Bending

Dreis & Krump Mfg. Co., Chicago, Ill.  
Interstate Machinery Co., Chicago, Ill.  
Peck, Stow & Wilcox Co.,  
Southington, Conn.  
Ryerson & Son, Inc., Jos. T.,  
Chgo., N. Y., St. L., Det., Cleve.

## Brakes—Cornice

Dreis & Krump Mfg. Co., Chicago, Ill.

## Brass and Copper

American Brass Co., Waterbury, Conn.  
Revere Copper and Brass Inc.,  
Rome, N. Y.

## Cans—Garbage

Diener Mfg. Co., G. W., Chicago, Ill.  
Osborn Co., The J. M. & L. A.,  
Cleveland, Ohio

## Castings—Malleable

Fanner Mfg. Co., Cleveland, Ohio

## Ceilings—Metal

Globe Iron Roofing and Corrugating Co.,  
Cincinnati, Ohio  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Chaplets

Fanner Mfg. Co., Cleveland, Ohio

## Cleaners—Vacuum

Baker Furnace Co., Toledo, Ohio  
Breuer Electric Mfg. Co., Chicago  
Brillion Furnace Co., Brillion, Wis.  
Densmore & Quinlan Co.,  
Kenosha, Wis.  
National Super Service Co.,  
Toledo, Ohio  
Osborn Co., The J. M. & L. A.,  
Cleveland, Ohio

## Conductor Elbows and Shoes

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Barnes Metal Products Co.,  
Chicago, Ill.  
Berger Bros. Co.,  
Philadelphia, Pa.  
Globe Iron Roofing & Corrugating Co.,  
Cincinnati, Ohio  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Conductor Fittings

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Barnes Metal Products Co.,  
Chicago, Ill.  
Berger Bros. Co.,  
Philadelphia, Pa.  
Braden Mfg. Co.,  
Terre Haute, Ind.  
Globe Iron Roofing & Corrugating Co.,  
Cincinnati, Ohio  
David Levow,  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.  
Rival Strap Corp.,  
New York, N. Y.

## Conductor Pipe

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Barnes Metal Products Co.,  
Chicago, Ill.  
Berger Bros. Co.,  
Philadelphia, Pa.  
Globe Iron Roofing & Corrugating Co.,  
Cincinnati, Ohio  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Copper

American Brass Co., Waterbury, Conn.  
Revere Copper and Brass Inc.,  
Rome, N. Y.

## Cornices

Globe Iron Roofing & Corrugating Co.,  
Cincinnati, Ohio  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Crimping Machines

Bertsch & Co., Cambridge City, Ind.  
Yoder Co., The,  
Cleveland, Ohio

## Cut-offs—Rain Water

Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Dampers—Quadrants—Accessories

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Aeolus Dickinson,  
Chicago, Ill.  
Hart & Cooley Co.,  
Holland, Mich.  
Howes Co., S. M.,  
Boston, Mass.  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.  
Parker-Kalon Corp.,  
New York, N. Y.  
Young Ventilating Co.,  
Cleveland, Ohio

## Dampproofings

Lastik Products Corp., Pittsburgh, Pa.

## Diffusers—Air Duct

Aeolus Dickinson,  
Chicago, Ill.

## Drills—Electric

J. M. & L. A. Osborn Co.,  
Cleveland, Ohio

## Drive Screws—Hardened Metallic

Parker-Kalon Corp.,  
New York

## Eaves Trough

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Barnes Metal Products Co.,  
Chicago, Ill.  
Berger Bros. Co.,  
Philadelphia, Pa.  
Globe Iron Roofing & Corrugating Co.,  
Cincinnati, Ohio  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Eaves Trough Hangers

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Berger Bros. Co.,  
Philadelphia, Pa.  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.

## Fluxes—Soldering

Kester Solder Co.,  
Chicago, Ill.  
Ryerson & Son, Inc., Jos. T.,  
Chgo., N. Y., St. L., Det., Cleve.

## Forming Rolls

Bertsch & Co., Cambridge City, Ind.  
Interstate Machinery Co., Chicago, Ill.

## Furnace Cement

Connors Paint Mfg. Co.,  
Troy, N. Y.  
Lastik Products Corp.,  
Pittsburgh, Pa.  
Milcor Steel Co.,  
Mil., Canton, Chgo., La Crosse, K. C.  
Technical Products Co.,  
Pittsburgh, Pa.

## Furnace Chain

Hart & Cooley Co.,  
Holland, Mich.

## Furnace Cleaners—Suction

Baker Furnace Co.,  
Toledo, O.  
Breuer Electric Mfg. Co.,  
Chicago  
Brillion Furnace Co.,  
Brillion, Wis.  
Densmore & Quinlan Co.,  
Kenosha, Wis.  
National Super Service Co.,  
Toledo, Ohio  
J. M. & L. A. Osborn Co.,  
Cleveland, Ohio

## Furnace Door Handles

Fanner Mfg. Co.,  
Cleveland, Ohio

## Furnace Fans

A-C Mfg. Co.,  
Pontiac, Ill.  
American Fdy. & Furnace Co.,  
Bloomington, Ill.  
Robinson Co., A. H.,  
Massillon, Ohio

## Furnace Filters

Independent Air Filter Co.,  
Chicago, Ill.  
Kleenaire Filter Co.,  
Stevens Point, Wis.

## Furnace Pipe and Fittings

Henry Furnace & Fdy. Co.,  
Cleveland, Ohio  
Meyer & Bro., F.,  
Peoria, Ill.  
Mil., Canton, Chgo., La Crosse, K. C.  
Osborn Co., The J. M. & L. A.,  
Cleveland, Ohio  
Peerless Foundry Co.,  
Indianapolis, Ind.

## Furnace Pokers

Fanner Mfg. Co.,  
Cleveland, Ohio

## Furnace Pulleys

Hart & Cooley Co.,  
Holland, Mich.

## Furnace Regulators

Hart & Cooley Co.,  
Holland, Mich.  
Modern Heat Regulator Co.,  
Cleveland, Ohio  
Minneapolis Honeywell Regulator Co.,  
Minneapolis, Minn.  
White Mfg. Co.,  
Minneapolis, Minn.

## Furnace Rings

Forest City Foundries Co.,  
Cleveland, Ohio

## Furnaces for Gas or Oil

Dall Steel Products Co.,  
Lansing, Mich.

## Furnaces—Gas

American Fdy. & Furnace Co.,  
Bloomington, Ill.  
American Furnace Co.,  
St. Louis, Mo.  
Henry Furnace and Foundry Co.,  
Cleveland, Ohio  
Lennox Furnace Co.,  
Marshalltown, Iowa  
Meyer Furnace Co.,  
Peoria, Ill.  
Payne Furnace & Supply Co.,  
Beverly Hills, Calif.  
Robinson Co., A. H.,  
Massillon, Ohio  
Wise Furnace Co.,  
Akron, Ohio  
Western Steel Products Co.,  
Duluth, Minn.

## Furnaces—Gas Auxiliary

Forest City Foundries Co.,  
Cleveland, O.

## Furnaces—Oil Burning

Motor Wheel Corp., Heater Div.,  
Lansing, Mich.

## Furnaces—Warm Air

Acme Tin Plate & Rfg. Supply Co.,  
Philadelphia, Pa.  
Agricola Furnace Co.,  
Gadsden, Ala.  
American Fdy. & Furnace Co.,  
Bloomington, Ill.  
American Furnace Co.,  
St. Louis, Mo.  
Armstrong Furnace Co.,  
Columbus, O.  
Brillion Furnace Co.,  
Brillion, Wis.  
Dall Steel Products Co.,  
Lansing, Mich.  
Deshler Foundry & Machine Works,  
Deshler, Ohio  
Enterprise Boiler & Tank Works,  
Chicago, Ill.  
Forest City Foundries Co.,  
Cleveland, Ohio  
General Heating Co.,  
St. Paul, Minn.  
Graff Furnace Co.,  
Scranton, Pa.  
Hall-Neal Furnace Co.,  
Indianapolis, Ind.  
Henry Furnace & Fdy. Co.,  
Cleveland, Ohio  
International Heater Co.,  
Utica, N. Y.  
Lennox Furnace Co.,  
Marshalltown, Iowa  
Liberty Foundry Co.,  
St. Louis, Mo.  
May Piebeger Furnace Co.,  
Newark, Ohio  
Meyer Furnace Co.,  
The Peoria, Ill.  
Midland Furnace Co.,  
Columbus, Ohio  
Motor Wheel Corp.,  
Heater Div.,  
Lansing, Mich.  
Mt. Vernon Furnace & Mfg. Co.,  
Mt. Vernon, Ill.  
Payne Furnace & Supply Co.,  
Beverly Hills, Calif.  
Peerless Foundry Co.,  
Indianapolis, Ind.  
Premier Warm Air Heater Co.,  
Dowagiac, Mich.  
Rybolt Heater Co.,  
Adrian, Ohio  
Schwab Furnace & Mfg. Co.,  
Cedar Grove, Wis.  
Standard Fdy. & Furnace Co.,  
De Kalb, Ill.  
U. S. Furnace Co.,  
Youngstown, Ohio  
Waterman-Waterbury Co.,  
Minneapolis, Minn.  
Western Steel Products Co.,  
Duluth, Minn.  
Williamson Heater Co.,  
Cincinnati, O.  
Wise Furnace Co.,  
Akron, Ohio

## Grilles

Auer Register Co.,  
Cleveland, Ohio  
Chicago Perforating Co.,  
Chicago  
Harrington & King Perforating Co.,  
Chicago, Ill.  
Hart & Cooley Co.,  
New Britain, Conn.  
Independent Register & Mfg. Co.,  
Cleveland  
Tuttle & Bailey Mfg. Co.,  
New York  
U. S. Register Co.,  
Battle Creek, Mich.

## Guards—Machine and Belt

Harrington & King Perforating Co.,  
Chicago, Ill.

## Handles—Boiler

Berger Bros. Co.,  
Philadelphia, Pa.

## Handles—Soldering Iron

Parker-Kalon Corp.,  
New York, N. Y.

## Heat Regulators

Hart & Cooley Co.,  
Holland, Mich.  
Modern Heat Regulator Co.,  
Cleveland, Ohio  
Minneapolis-Honeywell Regulator Co.,  
Minneapolis, Minn.  
White Mfg. Co.,  
Minneapolis, Minn.

## Heaters—Cabinet

Motor Wheel Corp., Heater Division,  
Lansing, Mich.  
Mt. Vernon Furnace & Mfg. Co.,  
Mt. Vernon, Ill.  
Payne Furnace & Supply Co.,  
Beverly Hills, Calif.  
Waterman-Waterbury Co.,  
Minneapolis, Minn.

## Heaters—School Room

Meyer Furnace Co.,  
The Peoria, Ill.  
Western Steel Products Co.,  
Duluth, Minn.  
Waterman-Waterbury Co.,  
Minneapolis, Minn.

## Humidifiers

Automatic Humidifier Co.,  
Cedar Falls, Iowa  
Diener Mfg. Co.,  
G. W., Chicago, Ill.  
Meyer & Bro. Co.,  
F., Peoria, Ill.  
Sallada Mfg. Co.,  
Minneapolis, Minn.

(Continued on page 46)

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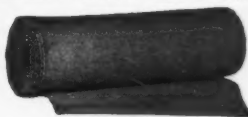
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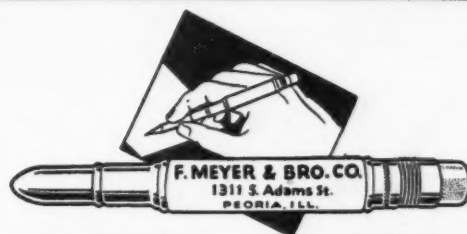


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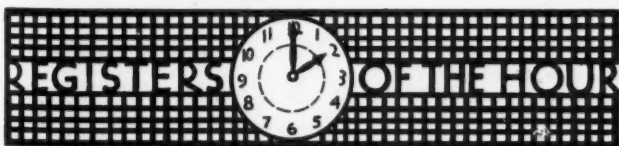
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# BUYERS' DIRECTORY

(Continued from page 44)

## Machinery—Culvert

Bertsch & Co., Cambridge City, Ind.  
Interstate Machinery Co., Chicago, Ill.

## Machinery—Rebuilt

Interstate Machinery Co., Chicago, Ill.

## Machines—Tinsmith's

Bertsch & Co., Cambridge City, Ind.  
Dreis & Krump Mfg. Co., Chicago, Ill.  
Hyro Mfg. Co., New York, N. Y.  
Interstate Machinery Co., Chicago, Ill.  
Marshalltown Mfg. Co., Marshalltown, Iowa  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Peck, Stow & Wilcox Co., Southington, Conn.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.  
Viking Shear Co., Erie, Pa.  
Whitney Mfg. Co., W. A., Rockford, Ill.  
Yoder Co., The, Cleveland, O.

## Metal Lath—Expanded

Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Miters

Barnes Metal Products Co., Chicago, Ill.  
Berger Bros Co., Philadelphia, Pa.  
Braden Mfg. Co., Terre Haute, Ind.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Nails—Hardened Masonry

Parker-Kalon Corp., New York, N. Y.

## Oil Burners

Rock Oil Burner Corp., Madison, Wis.  
McIlvaine Burner Corp., Evanston, Ill.  
Northern Oil Burners Inc., Minneapolis, Minn.  
Silent Automatic Corp., Detroit, Mich.

## Paint

Connors Paint Mfg. Co., Wm., Troy, N. Y.

## Perforated Metals

Chicago Perforating Co., Chicago  
Harrington & King Perforating Co., Chicago, Ill.

## Punches

Bertsch & Co., Cambridge City, Ind.  
Hyro Mfg. Co., New York  
Interstate Machinery Co., Chicago, Ill.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.  
W. A. Whitney Mfg. Co., Rockford, Ill.

## Punches—Combination Bench and Hand

Parker-Kalon Corp., New York, N. Y.

## Punches—Hand

Parker-Kalon Corp., New York, N. Y.  
W. A. Whitney Mfg. Co., Rockford, Ill.

## Putty-Stove

Connors Paint Mfg. Co., Wm., Troy, N. Y.

## Radiator Cabinets

Hart & Cooley Co., New Britain, Conn.  
Tuttle & Bailey Mfg. Co., New York

## Registers—Warm Air

Auer Register Co., Cleveland, Ohio  
Forest City Foundries Co., Cleveland, Ohio  
Hart & Cooley Co., Holland, Mich.  
Henry Furnace & Fdy. Co., Cleveland, Ohio  
Independent Register & Mfg. Co., Cleveland, Ohio  
Meyer & Bro. Co., F., Peoria, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Rock Island Register Co., Rock Island, Ill.  
Symonds Register Co., St. Louis, Mo.  
Tuttle & Bailey Mfg. Co., New York  
United States Register Co., Battle Creek, Mich.

## Registers—Wood

American Wood Register Co., Plymouth, Ind.  
Auer Register Co., Cleveland, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Repairs—Stove and Furnace

Brauer Supply Co., A. G., St. Louis, Mo.

## Ridging

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Roofing Cement

Connors Paint Mfg. Co., Wm., Troy, N. Y.  
Lastik Products Corp., Pittsburgh, Pa.

## Roof Flashing

Globe Iron Roofing and Corrugating Co., Cincinnati, Ohio  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Roof Paints

Connors Paint Mfg. Co., Wm., Troy, N. Y.  
Lastik Products Corp., Pittsburgh, Pa.

## Roofing—Iron and Steel

Globe Iron Roofing and Corrugating Co., Cincinnati, Ohio  
Inland Steel Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Newport Rolling Mill Co., The, Newport, Ky.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Roofing—Tin and Terne

Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Rubbish Burners

Hart & Cooley Co., Holland, Mich.

## School—Sheet Metal Pattern Drafting

St. Louis Technical Institute, St. Louis, Mo.

## Schools—Warm Air Heating

St. Louis Technical Institute, St. Louis, Mo.

## Screws—Hardened Metallic Drive

Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Parker-Kalon Corp., 200 Varick St., New York

## Screws—Hardened Self-Tapping, Sheet Metal

Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Parker-Kalon Corp., New York

## Screens—Perforated Metal

Harrington & King Perforating Co., Chicago, Ill.

## Scuppers

Aeolus Dickinson, Chicago, Ill.

## Shears—Hand and Power

Interstate Machinery Co., Chicago, Ill.  
Marshalltown Mfg. Co., Marshalltown, Iowa  
Peck, Stow & Wilcox Co., Southington, Conn.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.  
Viking Shear Co., Erie, Pa.  
Yoder Co., The, Cleveland, O.

## Sheet Metal Screws—Hardened, Self-Tapping

Parker-Kalon Corp., New York

## Sheets—Alloy

Inland Steel Co., Chicago, Ill.  
International Nickel Co., New York, N. Y.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Sheets—Aluminum

J. M. & L. A. Osborn Co., Cleveland, Ohio

## Sheets—Black and Galvanized

Inland Steel Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Sheets—Copper

American Brass Co., Waterbury, Conn.  
Revere Copper and Brass Inc., Rome, N. Y.

## Sheets—Iron

Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Sheets—Copper Bearing Steel

Inland Steel Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Newport Rolling Mill Co., Newport, Ky.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio

## Sheets—Nickel

International Nickel Co., New York

## Sheets—Pure Iron Copper Alloy

Newport Rolling Mill Co., Newport, Ky.

## Sheets—Special Finish

Inland Steel Co., Chicago, Ill.  
Newport Rolling Mill Co., Newport, Ky.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Republic Steel Corp., Youngstown, Ohio

## Shingles and Tiles—Metal

Globe Iron Roofing and Corrugated Co., Cincinnati, O.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Sky Lights

Globe Iron Roofing and Corrugated Co., Cincinnati, O.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Snips

Peck, Stow & Wilcox Co., Southington, Conn.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Snow Guards

Berger Bros. Co., Philadelphia, Pa.  
David Levow, New York, N. Y.  
Rival Strap Corp., New York, N. Y.

## Solder

Kester Solder Co., Chicago, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Solder—Acid Core

Kester Solder Co., Chicago, Ill.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Solder—Rosin Core

Kester Solder Co., Chicago, Ill.

## Solder—Self-Fluxing

Kester Solder Co., Chicago, Ill.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Soldering Furnaces

Diener Mfg. Co., G. W., Chicago, Ill.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Specialties—Hardware

Diener Mfg. Co., G. W., Chicago, Ill.

## Stars—Hard Iron Cleaning

Fanner Mfg. Co., Cleveland, Ohio

## Stove Pipe and Fittings

Meyer & Bro. Co., F., Peoria, Ill.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Stove and Furnace Trimmings

Fanner Mfg. Co., Cleveland, Ohio

## Strainers—Roof

David Levow, New York, N. Y.  
Rival Strap Corp., New York, N. Y.

## Straps—Ornamental Pipe

David Levow, New York, N. Y.  
Rival Strap Corp., New York, N. Y.

## Tinplate

Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio

## Tools—Tinsmith's

Bertsch & Co., Cambridge City, Ind.  
Dreis & Krump Mfg. Co., Chicago, Ill.  
Interstate Machinery Co., Chicago, Ill.  
Marshalltown Mfg. Co., Marshalltown, Iowa  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Parker-Kalon Corp., New York, N. Y.  
Peck, Stow & Wilcox Co., Southington, Conn.  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.  
The Stanley Electric Tool Co., New Britain, Conn.  
Viking Shear Co., Erie, Pa.  
Whitney Mfg. Co., W. A., Rockford, Ill.

## Torches

Diener Mfg. Co., G. W., Chicago, Ill.  
Osborn Co., The J. M. & L. A., Cleveland, Ohio  
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

## Vacuum Cleaners—Furnace

Baker Furnace Co., Toledo, O.  
Breuer Electric Mfg. Co., Chicago  
Brillion Furnace Co., Brillion, Wis.  
Denamore & Quinlan Co., Kenosha, Wis.  
National Super Service Co., Toledo, Ohio  
J. M. & L. A. Osborn Co., Cleveland, Ohio

## Ventilators—Ceiling

Hart & Cooley Co., New Britain, Conn.  
Henry Furnace & Fdy. Co., Cleveland, Ohio  
Independent Reg. & Mfg. Co., Cleveland, O.

## Ventilators—Floor

Aeolus Dickinson, Chicago, Ill.

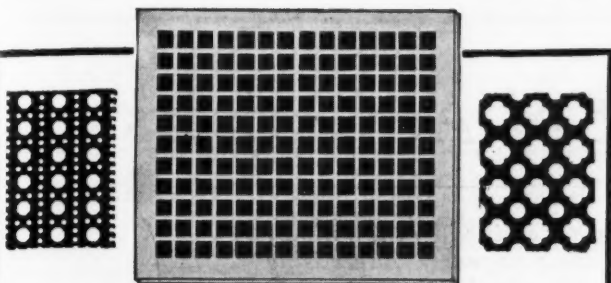
## Ventilators—Roof

Aeolus Dickinson, Chicago, Ill.  
Berger Bros. Co., Philadelphia, Pa.  
Burt Mfg. Co., Akron, O.  
Paul R. Jordan & Co., Indianapolis, Ind.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

## Wood Faces—Warm Air

Auer Register Co., Cleveland, Ohio  
American Wood Register Co., Plymouth, Ind.  
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Say you saw it in AMERICAN ARTISAN—Thank you!



## PERFORATED METAL GRILLES

OF EVERY TYPE

**SQUARE PERFORATIONS—IMITATION CANE and OTHER DESIGNS**  
For Ventilating Outlets, Warm or Cold Air Vents, Radiator Covers, etc.  
Made to your specifications—in Steel, Brass, Bronze, etc.

All shapes—sizes and gauges—with screw holes if desired.

Send Us Your Specifications—Prompt Shipment

Attractive Prices

**CHICAGO PERFORATING COMPANY**

2444 West 24th Place

Chicago, Illinois

## "EVERYTHING USED IN SHEET METAL WORK"

THE J. M. & L. A.  
**OSBORN**  
DETROIT-CLEVELAND-BUFFALO  
"Everything Used in Sheet Metal Work"

## The Viking Shear

Compound lever handle—removable blades. Upper blade away from mechanic enabling easy following of work—an exclusive Viking feature.



Sold Under a Guarantee—Send for Particulars

**VIKING SHEAR CO., Erie, Pa.**

Our Line  
Light and heavy  
machinery for  
all classes of  
sheet metal,  
plate and  
structural  
work.

**SQUARING SHEAR**  
Capacity 10' x 10' 6" shallow gap

**BERTSCH & CO.**  
Cambridge, Mass. Indiana

*The*  
**Electric Janitor**

FULLY ELECTRIC  
MOTOR-DRIVEN

Limit Controls  
Available

TRADE PRICE  
**\$24.50**

Consumer Price  
\$49.00  
Plus Installation

Product of **TIME-O-STAT CONTROLS**  
Division of Minneapolis-Honeywell Regulator Company  
ELKHART, IND. and MINNEAPOLIS, MINN.

You can now heat with fresh air as economically as with recirculated air—and better.

## FRESH-AIRE HEATING SYSTEM

Write for details

**GENERAL HEATING COMPANY**  
St. Paul, Minn.



The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.

A fuel saver and generating machine of the finest quality made at the price.

**GEO. W. DIENER MFG. CO.**

404 North Monticello Ave.

Chicago

## WATERBURY SEAMLESS FURNACE

REG. U.S. PAT. OFF. PIPE OR PIPELESS

**Permanently  
Gas-Tight**

One-Piece Steel  
Construction—  
Durable and  
Economical

**Waterman-Waterbury Co.**  
1122 Jackson St. N.E.  
Minneapolis Minnesota

Say you saw it in AMERICAN ARTISAN—Thank you!

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# Classified Advertising

## BUSINESS CHANCES

**Lightning Rods**—Dealers who are selling **Lightning Protection** will make money by writing to us for our latest **Factory to Dealer Prices**. We employ no salesmen and save you all overhead charges. Our **Pure Copper Cable and Fittings** are endorsed by the **National Board of Fire Underwriters** and hundreds of dealers. Write today for samples and prices. **L. K. Diddle Company, Marshfield, Wis.**

**For Sale**—Best equipped general shop in northern Ohio town of 2,200. Very excellent exclusive furnace agency. Seven towns, two cities, Ordnance Depot and Army Camp within 12-mile radius. Other interests compel full attention. Address **P-538, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**For Sale**—Best equipped sheet metal, heating and plumbing shop in eastern Nebraska. Established and under same management for thirty years. County seat town of 4,000. Only shop in town. Would consider selling half interest to young man that is a thorough mechanic and has ability to canvass and install work. The opportunity of a life time for such a man. Address **Box 751, Plattsmouth, Nebraska.** **E-539**

**For Sale**—Small hardware store and building. Kansas town of 500 population. Good farming community. Building and stock, about \$7500. For full particulars, write **F-539, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**For Sale**—Sheet metal and furnace business. A going business. Reason for selling, retiring. Near St. Louis, Missouri. Price, \$800 cash complete. Address **R-539, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

## HELP WANTED

### WANTED

**National distributor of Hardware, Implements, Plumbing, Heating, Paints, etc., with many stores, offers opportunity for permanent employment to men who have operated or been employed in Hardware Stores handling above lines.**

**Must be able to plan and estimate plumbing and heating jobs and also handle ALL other duties connected with the successful operation of a country Hardware Store.**

**Write in confidence giving all details, including age, names of former employers and past and present salary.**

**Address A-539  
AMERICAN ARTISAN  
139 N. Clark St. Chicago, Ill.**

Manufacturer of high grade steel furnaces wants strictly commission salesman to cover all or part of New York State. Liberal commission promptly paid. Some established trade. Address **L-539, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**Wanted**—A good retail furnace salesman to manage our branch at Zanesville, Ohio. Must be capable to figure and lay out own jobs. Prefer man who can also do own installing. Have plenty of live prospects to work on. Commission basis. Wonderful opportunity for the man who knows the furnace business and is willing to work. Address **P. O. Box 647, Zanesville, Ohio.** **P-539**

## HELP WANTED

**Well financed, long established hardware store in West Virginia has opening for furnace man to head new heating department. This organization wants a man well versed in selling, lay-out work, and installing to come with them on a partnership basis. No investment required. Man chosen will pay own personal expense but will share 50-50 profits of heating department. This organization will furnish everything necessary to operate. Correspondence invited from those interested. Full details will be sent. Address the **Armstrong Furnace Company, Columbus, Ohio.****

**M-539**

## SITUATION WANTED

**Situation Wanted**—By first class sheet metal worker, plumber, and furnace man with 25 years experience. Married, sober, steady and reliable. Best of references. Address **F-538, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**Situation Wanted**—Who wants a first-class, all-around sheet metal worker? Can do furnace and roofing work of all kinds; draft all patterns; neat, accurate, thoroughly experienced and capable; but best proof is actual performance. Prefer shop in well established hardware. Best references. Address **G. M. S., 838 Wayne Avenue, Defiance, Ohio.** **O-538**

**Situation Wanted**—By first class tinner and plumber with 28 years experience. Can also do any kind of work that comes into a shop. Experienced in steel ceiling, pump and windmill work. Can furnish references. Address **F. C. Blewett, Dodgeville, Wisconsin.** **Y-538**

**Situation Wanted**—By first class tinner and sheet metal worker. Can do plumbing and heating and all kinds of shop work. Iowa or Illinois preferred. Address **C-539, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**Situation Wanted**—Competent plumber and steam fitter, good on furnace and sheet metal work, will take small town position. Refined gentleman, 42 years old, and in good health. Address **Plumber, 4632 Second Boulevard, Detroit, Michigan.** **K-539**

**Situation Wanted**—Plumber, steam fitter, and tinner would like position with a good party or company. Can give best of references as to ability either at installing or handling the work. Don't mind working and will not lay down on the job. Am a lead working plumber, twenty years experience at this line of work. Address **C. G. Perrin, Clifton, Wyoming.** **H-539**

## SITUATION WANTED

**Situation Wanted**—By a first class all around sheet metal worker with 25 years at the trade. Can handle any kind of a job that may come to any job shop. Can also read blueprints, lay out patterns, and figure work. Can go any place. Address **Geo. Collins, 417 Jones Street, Clearwater, Florida.** **O-539**

**Situation Wanted**—By all around sheet metal worker. Can do heating, ventilating, blow piping and fan installation work. Can do all work from blueprints. Good on any class of work that comes in a contract shop. 21 years in or with two shops. Address, **D. Sigmon, 1618 East Washington Street, Indianapolis, Indiana.** **J-539**

## TOOLS AND MACHINES

**Wanted**—Furnace suction cleaner. Must be in good condition and reasonable. Address **Schwarzkopf Sheet Metal Works, Waupaca, Wisconsin.** **B-538**

**Wanted**—A used **Lennox of Marshalltown Throatless Shear**, capacity  $\frac{1}{4}$ -in. steel motor driven. Also single iron former. Must be in first class condition and priced reasonable. Address **E-538, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**For Sale**—One used **Robinson 8-foot cornice brake**. Will bend 12 gauge, 8 foot long. Price, \$75.00. Address **Jacob Brenner, 45-47 Third Street, Fond du Lac, Wisconsin.** **R-538**

**For Sale**—**Buffalo Forge Angle Iron Cutter No. 2**, in good condition. \$10.00 cash buys it. Address **X-538, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

**For Sale**—One **Niagara Deep Throat Bader No. 2**, with four sets of rolls and standard. All in good condition. Will sell about  $\frac{1}{2}$  price. Address **B-539, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.**

**For Sale**—One 72" all steel **Box and Pan Brake**, almost new. Will handle 18 gauge material. Price, \$75.00. One 16" **Cannedy Otto Drill Press**, large size. In good shape. Price, \$50.00. Address **Charles Barnum, Mankato, Minnesota.** **G-539**

**For Sale**—One heavy used 30" **Peck, Stow & Wilcox Bar Folder** in good condition. Will bend 20 gauge. Price, \$38.00. Address **D-539, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.**

## INTERSTATE MACHINERY COMPANY

### Sheet Metal Equipment

~ This Week's Specials ~

No. 1 Wrights Pipe Folder.....	\$15.00
Niagara Circle Shear.....	25.00
30 x 2 Slip Roll.....	17.50
No. 2 Whitney Hand Punch.....	7.50
Large Nia. Turning Machine.....	9.50
30" Shear with Gauges.....	35.00

Send Us Your Inquiries  
We Have THE Stock

130 S. Clinton St., Chicago

**WE BUY — SELL —  
EXCHANGE**

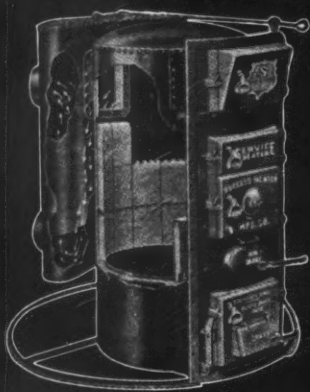
Say you saw it in **AMERICAN ARTISAN**—Thank you!



FURNACES Like Men  
Should be Judged by the  
Company They Keep...

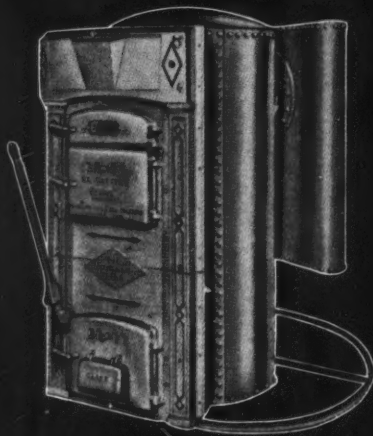
Have You Ever Noticed  
That Most Leading  
Furnace Dealers Are

**MIDLAND DEALERS**



**SUCCESS  
HEATER**

**EL CAPITAN  
FURNACE**



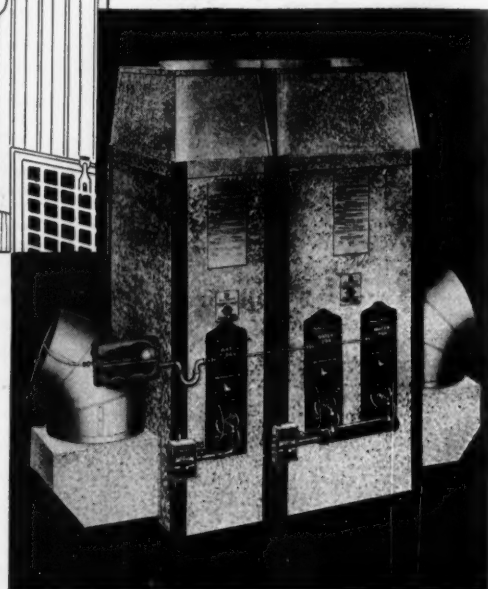
**MIDLAND FURNACE CO.**  
COLUMBUS, OHIO      DES MOINES, IOWA

# PAYNE



**GAS-FIRED  
VENTED**

Healthful heat is available with  
no more effort than pressing a  
button!



## UNIT SYSTEM OF HEATING

Payne Unit Furnaces have every convenience for which modern housewives are clamoring... room-by-room control like electric lights... basement cleanliness... fuel economy and convenience. With the Payne Line you can provide luxurious heating comfort in homes of five rooms and palatial residences alike. Fifteen years scientific research... the successful experience of the world's largest installing and servicing organization... these and other factors help you to increase your sales and safeguard your profits! Write for proposition...



**PAYNE FURNACE  
& SUPPLY CO., INC.**  
Beverly Hills, California

Warehouse—Buffalo, N. Y. • Jobbing Connections in Principal Cities  
Dealers Everywhere

There's a Payne Heat System for Every Climate and Building

Say you saw it in AMERICAN ARTISAN—Thank you!

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“When they’ve got the Solder  
*they’ve got the FLUX!*”



“SURE thing my men like to work with Kester Solder. To tell the truth, they were sold on it quicker than I was. *It's convenient . . .* that's why. Now they don't have to mess with separate fluxes . . . and keep track of disappearing flux-bottles. Kester Solder has its scientifically prepared flux right inside itself.”

There's more to this Kester idea, too. It gives perfect results . . . and any man

likes to turn out high-class work. What's more, the economy of Kester lets you bid on more jobs, and give your men *steady* work. Get next to Kester *now*. There's Acid-Core, Paste-Core, and Rosin-Core on 1, 5 and 20 lb. spools. Your jobber has them all. Kester Solder Company, 4241 Wrightwood Avenue, Chicago, Illinois. Incorporated 1899.

# KESTER FLUX-CORE SOLDER

Acid-Core • Paste-Core • Rosin-Core



**All Kester Solder Exceeds  
Class A Purity Specifica-  
tions of the A. S. T. M.**

Write for FREE SAMPLE . . . any flux you want

## A Sensational New Product

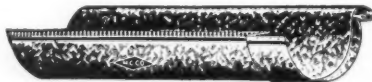


at amazingly low prices!

It's *fast*... because all you do is bend the *Milcor* TITELOCK Hanger around *any* trough... insert the strap thru the crossbar... bend it over with a pair of pliers and nail the strap to the roof.

No wonder this new *Milcor* product has become an instant success. It's so *easy*... so *simple*... so *fast*!

And unusually *strong*, too. The rib in the crossbar gives added rigidity



The *Milcor* CRIMPEDGE Gutter, single bead, is unusually strong and rigid. Each 10-foot length is perfectly half-round, uniform and straight. Stocked in slip or lap joint types, in galvanized steel, Armco Iron, Anaconda Copper and Copper Alloy.

... the TITELOCK is sure to hold... and the way the *Milcor* Hanger hugs the trough adds to the strength of the entire assembly. Remember, time is money... and that this new *Milcor* time-saver will give you the "edge" on the boys who don't have it.

Stocked in galvanized steel and Anaconda Copper, for *any* single bead eaves trough. Wire, write or phone the nearest *Milcor* office... **NOW!**

*Copper Alloy Steel*  
**MILCOR**  **PRODUCTS**  
Save with Steel

### MILCOR STEEL COMPANY

MILWAUKEE, WIS., 4117 W. Burnham St.  
Chicago, Ill.

Kansas City, Mo.

CANTON, OHIO  
LaCrosse, Wis.

Sales Offices: New York, at 100 E. 42nd Street; Boston, Mass., at 136 Federal Street;  
Atlanta, Ga., at Spring & Luckie Streets; Minneapolis, Minn., at 602-2nd Avenue, So.;  
Little Rock, Ark., at 104 W. Markham Street